

**STATE OF UTAH**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF OIL, GAS, AND MINING**

6. LEASE DESIGNATION AND SERIAL NO.

**UT-ML-47978-OBA****APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

1a TYPE OF WORK

**DRILL** ☒**DEEPEN** ☐**PLUG BACK** ☐

7. UNIT AGREEMENT NAME

B TYPE OF WELL

Oil Well ☐Gas Well ☒

OTHER

Single Zone ☐Multiple Zone ☒

8. FARM OR LEASE NAME

2. Name of Operator

**Marathon Oil Company**

9. WELL NO.

**SITLA #34-15**

3. Address of Operator

**1501 Stampede Avenue, Cody, WY 82414**

10. FIELD OR LEASE NAME

4. Location of Well (Report location clearly and in accordance with any State requirement)

At surface

**1,337' FEL, 1,162' FSL****SW/SE***4373894 N  
5089641*11. Sec., T., R., M., OR BLK  
AND SURVEY OR AREA**Sec. 15, T15S, R9E**

At proposed prod. Zone

12. COUNTY OR PARISH 13. STATE

**Carbon****Utah**15. Distance from proposed location to nearest  
Property or lease line ft.**1,162'**

16. NO. OF ACRES IN LEASE

**560**17. NO. OF ACRES ASSIGNED  
TO THIS WELL**160**

(Also to nearest drlg. Unit line, if any)

16. DISTANCE FROM PROPOSED LOCATION \*  
TO NEAREST WELL, DRILLING COMPLETED.

19. PROPOSED DEPTH

**3,850'****2,762'**

20. ROTARY OR CABLE TOOLS

**Rotary**

OR APPLIED FOR, ON THIS LEASE, FT.

21. ELEVATION (SHOW WHETHER DF. RT, GR, etc.)

**6,023' GR**

22. APPROX. DATE WORK WILL START

**April 15, 2000**

23

**PROPOSED CASING AND CEMENT PROGRAM**

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
<b>11"</b>	<b>8-5/8"</b>	<b>24</b>	<b>300'</b>	<b>To Surface</b>
<b>7-7/8"</b>	<b>5-1/2"</b>	<b>17</b>	<b>T.D.</b>	<b>1,390'</b>

**Operator requests permission to drill the subject well.****Please see the attached 10 Point and 13 Point Surface Use Plane.****If you require additional information please contact:**

**William Ryan**  
**350 S., 800 E.**  
**Vernal, Utah**  
**435-789-0968**

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposed in to deepen or plug back, give data on proposed productive zone and proposed new productive zone. If proposal is to drill or deepen directional, give pertinent data on subsurface location and measure and true vertical depths. Give blowout preventer program, if any.

24

SIGNATURE

**William Ryan**

TITLE

**Agent**

DATE

**Jan 15, 2000**

(This space for Federal or State Office use)

PERMIT NO.

*43-002-30666*

APPROVAL DATE

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

**BRADLEY G. HILL**

DATE

*3/23/00***RECLAMATION SPECIALIST III****\*See Instructions on Reverse Side**

Title 18 U. S. C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**T15S, R9E, S.L.B.&M.**

**MARATHON OIL CO.**

Well location, SITLA #34-15, located as shown in the SW 1/4 SE 1/4 of Section 15, T15S, R9E, S.L.B.&M. Carbon County, Utah.

S89°50'W - 40.52 (G.L.O.)

N88°37'W - 40.26 (G.L.O.)

**BASIS OF ELEVATION**

SPOT ELEVATION AT THE SOUTHWEST CORNER OF SECTION 15, T15S, R9E, S.L.B.&M. TAKEN FROM THE PINNACLE PEAK QUADRANGLE, UTAH, CARBON COUNTY 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 5978 FEET.

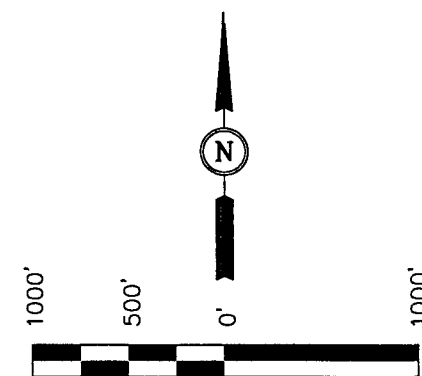
N00°13'E - 40.49 (G.L.O.)

N00°12'E - 40.15 (G.L.O.)

N00°39'E - 40.41 (G.L.O.)

1940 Brass Cap  
0.8' High, Pile  
of Stones

N00°02'W - G.L.O. (Basis of Bearings)  
2624.79' (Measured)

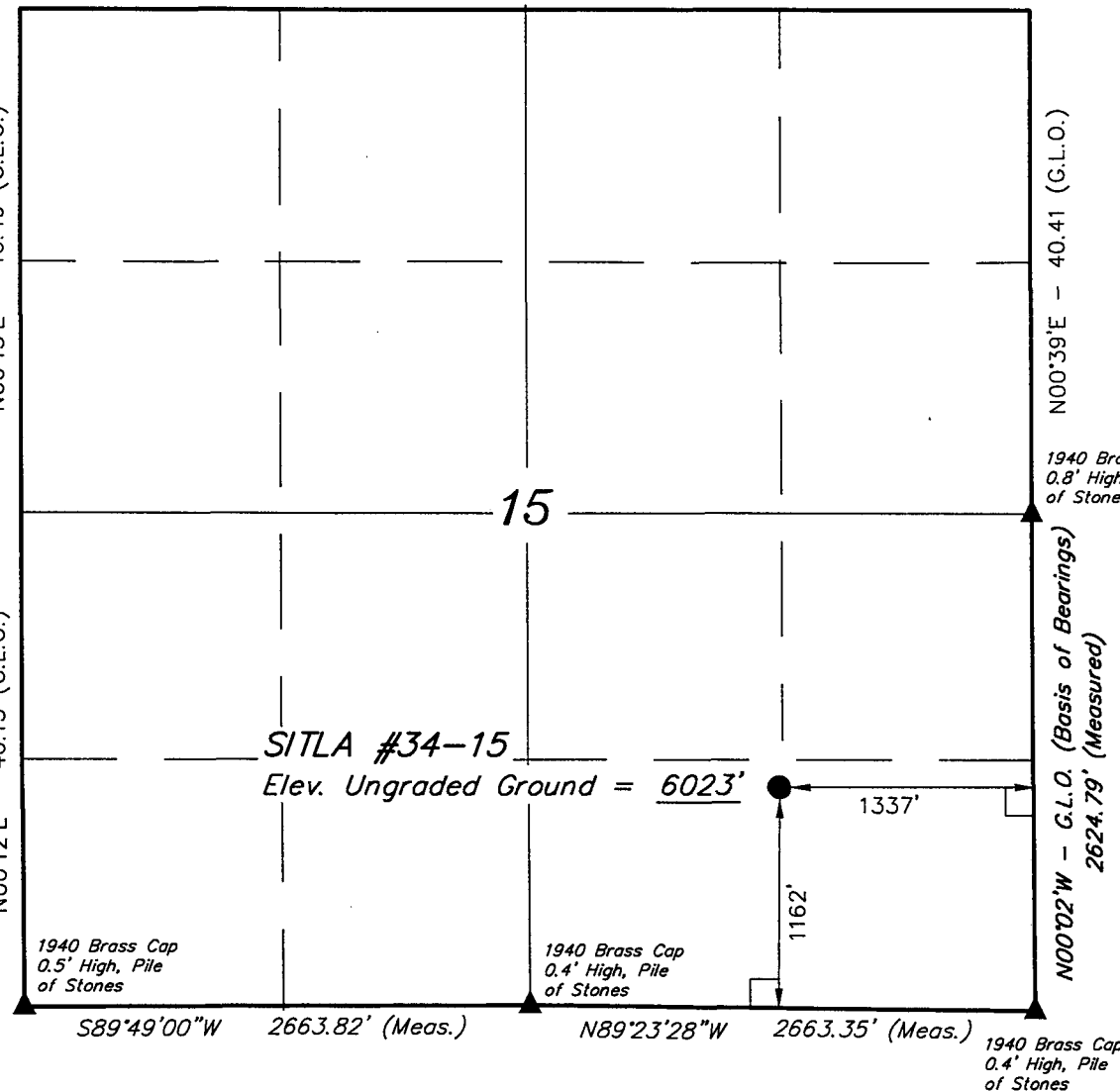


SCALE

**CERTIFICATE**

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME, OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

*Robert H. Kay*  
REGISTERED LAND SURVEYOR  
REGISTRATION NO. 151319  
STATE OF UTAH



**LEGEND:**

- └─ = 90° SYMBOL
- = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

Latitude = 39°30'59"  
Longitude = 110°53'41"

**UINTAH ENGINEERING & LAND SURVEYING**  
85 SOUTH 200 EAST - VERNAL, UTAH 84078  
(435) 789-1017

SCALE 1" = 1000'	DATE SURVEYED: 10-5-99	DATE DRAWN: 1-4-00
PARTY D.K. L.J. C.B.T.	REFERENCES G.L.O. PLAT	
WEATHER COOL	FILE MARATHON OIL CO.	



Office (435) 789-0968  
Cellular (435) 828-0968

350 S. 800 E.  
Vernal, UT 84078

January 15, 2000

Re: Well SITLA #34-15  
SW/SE, Sec. 15, T15S, R9E  
Lease No. ML-47978-OBA

Utah Division of Oil Gas and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, UT 84114-5801

Dear Sirs:

Marathon Oil Company (Marathon) respectfully requests a spacing exception for the subject well. The well was originally requested for the center of the **SW ¼ of the SE ¼ of Sec. 15, T15S, R9E**. The location was moved due to topographic considerations, erosion potential, major and minor drainage's, access conditions and deer winter range. Please see the attached map for details.

The well is located **1,162' FSL, 1,337' FEL in Sec. 15, T15S, R9E**.

A 460' radius around the proposed location is within the lease **ML-47978-OBA**. Please see the attached plat for details.

If you have additional questions please contact:

A handwritten signature in cursive script that reads "William A. Ryan".

William (Bill) Ryan  
Rocky Mountain Consulting  
Agent

435-789-0968 Office  
435-828-0968 Cellular  
435-789-0970 Fax

## **SELF-CERTIFICATION STATEMENT**

**The following self-certification statement is provided per Federal and State of Utah requirements dated June 15, 1988.**

**Please be advised that Marathon Oil Company is considered to be the operator of the following well.**

**SITLA #34-15**


**SW 1/4, SE 1/4, Section 15, T. 15 S., R. 9 E.**

**Lease ML-47978-OBA**

**Carbon County, Utah**

**Marathon Oil Company is responsible under the terms and conditions of the lease for the operations conducted upon the lease lands.**

**State of Utah Blanket O&G Bond 5217029 and SITLA Bond 5922542 provides state wide bond coverage on State of Utah lands.**

A handwritten signature in dark ink, reading "William A. Ryan", is written over a horizontal line.

**William A. Ryan**

**Agent**

**Rocky Mountain Consulting**

**350 S. 800 E.**

**Vernal UT 84078**

**435-789-0968 Office**

**435-828-0968 Cell**

**435-789-0970 Fax**

## Ten Point Plan

Marathon Oil Company

SITLA #34-15

Surface Location SW ¼, SE ¼, Section 15, T15S, R9E

### 1. Surface Formation:

Mancos

### 2. Estimated Formation Tops and Datum:

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>
Mancos	Surface	+6,030' KB
Ferron	2,390'	+3,640'
#1 Coal	2,427'	+3,603'
#5 Coal	2,503'	+3,527'
Tunnunk	2,660'	+3,370'
T.D.	2,762'	+3,268'

### 3. Producing Formation Depth:

Formation objective includes both the #1 and #5 Coal.

### 4. Proposed Casing:

<u>Hole</u> <u>Size</u>	<u>Casing Grade</u> <u>Size</u> <u>Weight/Ft.</u>	<u>Setting</u> <u>&amp; Tread</u>	<u>Casing</u> <u>Depth</u>	<u>New/Used</u>
11	8 5/8   24	J-55/STC/8rd	300	New
7 7/8	5 1/2   17	L-80/STC/8rd	T.D.	New

### Cement Program:

<u>Casing Size</u>	<u>Cement Type</u>	<u>Cement Amount</u>	<u>Cement Yield</u>	<u>Cement Weight</u>
8 5/8	Premium Plus 2% Calcium Chloride .25 lb/sk. Cello Flake	135 sks. +/-	1.19 cu. ft./sk.	15.6 lbs./gal.
5 1/2 Lead.	50/50 Pozmix 10% Cal Seal 2% Calcium Chloride .25 lb/sk. Cello Flake 8% Gel	60 sks. +/-	1.89 cu. ft./sk.	12.7 lbs./gal.
Tail	Thixotropic 10% Cal Seal 1% Calcium Chloride	120 sks. +/-	1.6 cu. ft./sk.	14.2 lbs./gal.

### 5. BOP and Pressure Containment Data:

The anticipated bottom hole pressure will be less than 3000 psi.

A 2000-psi WP BOP system as described in the BOP and Pressure Containment Data (attached) will be installed and maintained from the 8 5/8" surface casing. The BOP system including the casing will be pressure tested to the minimum standards set forth in "On Shore Order #2". The BOP will be mechanically checked daily during the drilling operation.

### 6. Mud Program:

<u>Interval</u>	<u>Mud weight lbs./gal.</u>	<u>Viscosity Sec./Qt.</u>	<u>Fluid Loss Ml/30 Mins.</u>	<u>Mud Type</u>
0-300	Clear Water	----	No Control	Water/Gel
300-T.D.	8.4-8.6	30	8-10	Water/Gel

## **7. Auxiliary Equipment:**

Upper Kelly cock, full opening stabbing valve, 2 1/2" choke manifold and pit level indicator.

## **8. Testing, Coring, Sampling and Logging:**

- a) Test: None are anticipated.
- b) Coring: There is the possibility of sidewall coring.
- c) Sampling: Every 10' from 1,800' to T.D.
- d) Logging:

Type	Interval
Array Induction-Gamma Ray-SP-Caliper	T.D. to Surf. Csg
High Resolution Spectral Density-PEF	T.D. to Surf. Csg
Compensated Neutron, Microlog	T.D. to Surf. Csg

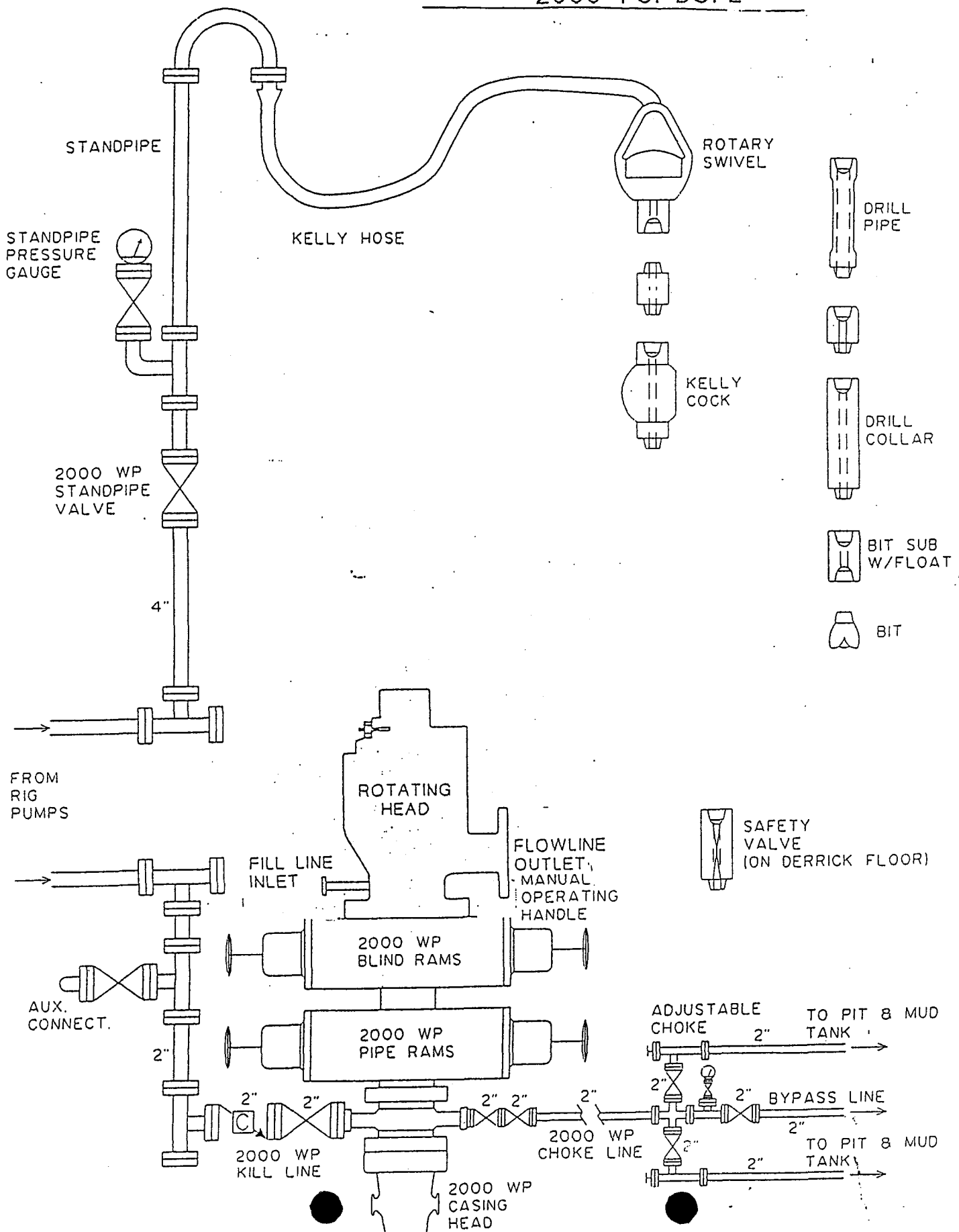
## **9. Abnormalities (including sour gas):**

No abnormal pressures, temperatures or other hazards are anticipated. Oil and gas shows are anticipated. Other wells drilled in the area have not encountered over pressured zones or H<sub>2</sub>S.

## **10. Drilling Schedule:**

The anticipated starting date is April 15, 2000. Duration of operations expected to be 3 days.

# MARATHON OIL COMPANY 2000 PSI BOPE



**MARATHON OIL CO.**

**13 POINT SURFACE USE PLAN**

**FOR WELL**

**MARATHON OIL CO.**

**SITLA #34-15**

**LOCATED IN**

**SW 1/4, SE 1/4**

**SECTION 15, T15S, R9E, S.L.B.&M.**

**CARBON COUNTY, UTAH**

**LEASE NUMBER: ML-47978-OBA**

**SURFACE OWNERSHIP:**

**STATE OF UTAH**

**SCHOOL AND INSTATUTIONAL TRUST LANDS ADMINISTRATION**

## 1. Existing Roads

To reach the **Marathon Oil Co. SITLA #34-15**, in **Section 15, T15S, R9E**, from Price, Utah:

**Starting in Price, Utah proceed south on State Highway 10. Proceed 6.0 miles and turn right (west) on an existing gravel road. Proceed 2.7 miles. Turn left (south) on an existing oil field access road. Proceed .5 miles. The proposed access will start at this point.**

All existing roads to this point are State or County Class D roads except for the last .5 miles.

New construction will start at this point.

Please see the attached map B for additional details.

## 2. Planned access road

The proposed location will require approximately **.6 miles +/- (3,168 feet)** of **new road** construction.

Approximately **.2 miles +/- (1,056 feet)** of access road will require **upgrading**.

The road will be upgraded and built to the following standards:

A) Approximate length	<b>4,224 Ft.</b>
B) Right of Way width	<b>30 Ft.</b>
C) Running surface	<b>18 Ft.</b>
D) Surfacing material	<b>Native soil &amp; crushed gravel</b>

E) Maximum grade	<b>9%</b>
F) Fence crossing	<b>None</b>
G) Culvert	<b>None</b>
H) Turnouts	<b>None</b>
I) Major cuts and fills	<b>None</b>
J) Road flagged	<b>Yes</b>
K) Access road surface ownership	

### State of Utah, SITLA

L) All new construction on lease	<b>Yes</b>
M) Pipe line crossing	<b>None</b>
O) Stream crossings	<b>None</b>
P) Low water crossings	<b>2</b>

Please see the attached location Map B for additional details.

A right of way will not be required for the proposed location.

## 3. Location of existing wells

The following wells are located within a one mile radius of the location site.

A) Producing well	<b>Three</b> <b>Sec. 14, &amp; 23</b> <b>T15S, R9E</b>
B) Water well	<b>None</b>
C) Abandoned well	<b>None</b>
D) Temp. abandoned well	<b>None</b>
E) Disposal well	<b>None</b>
F) Drilling/Permitted well	<b>Five</b> <b>Sec. 16 &amp; 15,</b> <b>T15S, R9E</b>
G) Shut in well	<b>Two</b> <b>Sun State 1-16</b> <b>Sec. 16, T15S, R9E</b> <b>General America 1-15</b> <b>Sec. 15, T15S, R9E</b>
H) Injection well	<b>None</b>
I) Monitoring or observation well	<b>None</b>

Please see the attached map for additional details.

**4. Location of tank batteries, production facilities, and production gathering service lines.**

All production facilities are to be contained within the proposed location site. Please see the attached plat plan for a typical gas well separator installation and well site piping.

All permanent (on site for more than six months or longer) structures constructed or installed will be painted a **Juniper Green** color. Facilities required to comply with O.S.H.A. (Occupational Safety and Health Act) will be excluded. The required **paint** color is **Juniper Green**.

No tanks will be required at the location.

A dike will be constructed around the whole location.

**If the well is capable of economic production a gas gathering line, a produced water line and power cable will be required. All lines will be buried.**

**A. Produced Water Line**

**The proposed produced water lines will be constructed from the subject well to a proposed water disposal well in Sec. 23, T15S, R9E. Please see the attached produced water pipeline map.**

**Approximately 3,200' of 12" or smaller plastic/fiberglass gathering line would be constructed on SITLA lands the tie in point will be into a proposed line in Section 15, T15S, R9E.**

Please see the attached location diagrams and **Water Pipeline map** for the location of the produced water pipeline. The Operator proposes burring the line 4 feet below the surface.

**B. Gas Gathering Line**

The Operator proposes building approximate **3,200 feet of plastic 14" or smaller gas gathering line. The line will start at the proposed location and be constructed to a tie in to a proposed central gas processing facility SWD #1 in Section 23, T15S, R9E. The proposed tie in will be in Section 14, T15S, R9E. Please see the attached gas gathering line map.**

The gas line will be buried in the same trench used to install the produced water line as previously described.

The gas meter run will be located within 500' of the well head. The gas line will be buried or anchored down from the well head to the meter. Meter runs will be housed and/or fenced.

The gas meter will be calibrated in place prior to any deliveries. All measurement facilities will conform to API (American Petroleum Institute) and AGA (American Gas Association) standards for gas and liquid hydrocarbon measurement.

Pipeline construction and seeding.

Silt controls will be used to minimize silt entry into **Serviceberry Creek**. Controls will include but not be limited to the following, silt catchment ponds, plastic dikes and the use of straw bails.

Sand bedding may be required to protect water and gas lines in rocky areas. The sand will come from an off sight location.

The gas and water lines will be buried. A track hoe or backhoe will be used to dig a trench approximately as wide as the bucket used to dig the trench and as deep as 4 feet. Trees will be removed as required for the trenches. **When the water and gas lines are adjacent to a proposed road** the topsoil will be removed from the road and pipeline and wind rowed along the side of the road and pipeline. **When the pipeline is constructed cross-country the topsoil will be removed and wind rowed outside the area used to store material removed from the trench.** A motor grader will be used to remove the topsoil. Topsoil will be replaced as soon as the trench has been back filled. Seed will be spread when the topsoil is replaced.

#### **C. Electrical Power Cable.**

The operator proposes installation of a power line at some time in the future. Currently Utah Power is not able to install or supply power for this well. Power should be available in the next year or two. The power cable will be installed in a trench on the opposite side of the road from the gas gathering line and the produced water line. Please see the attached power cable map. The line will be installed in a trench dug with a backhoe. The width will be the width of a bucket and 4' deep. The trench will be back filled as soon as the line has been installed. The disturbed area will be reseeded as soon as the trench is back filled. The seed mix will be as specified by the Utah Division of Oil Gas and

Mining. Erosion controls will be the same as listed for the water and gas gathering trench.

#### **5. Location and type of water supply**

Water for drilling and cementing the subject well will be trucked from **Price Cities water tank on Highway 10.**

#### **6. Source of construction materials**

All construction material for this location site and access road shall be borrow material accumulated during construction of the location site and access road. Additional road gravels or pit lining material will be obtained from private sources.

#### **7. Methods for handling waste disposal**

##### **A) Pit construction and liners:**

The reserve pit will be approximately 8 ft. deep and most of the depth shall be below the surface of the existing ground. Please see the attached plat for details.

##### **The reserve pit will be lined.**

The reserve pit will be used to hold non-flammable materials such as cuttings, salt, drilling fluids, chemicals, produced fluids, etc.

##### **B) Produced fluids:**

Produced water will be confined to the reserve pit, or if deemed necessary, a storage tank, for a period not to exceed 90 days after initial production. Produced water after the initial production will be piped to a proposed water injection well in Section 23, T15S, R9E.

C) Garbage:

A trash cage fabricated from expanded metal will be used to hold trash on location and will be removed to an authorized land fill location.

D) Sewage:

A portable chemical toilet will be supplied for human waste.

E) Site clean-up:

After the drilling and work over rig is moved off the location the well site area will be cleaned and all refuse removed.

**8. Ancillary facilities**

There are no ancillary facilities planned at this time and none are foreseen for the future.

**9. Well-site layout and location.**

**The proposed location has been staked at 1,162' FSL, 1,337' FEL. The location has been moved out side the normal drilling window spacing due to topographic and mule deer winter range considerations.**

**Well-site layout**

Location dimensions are as follow:

A) Pad length	230 ft.
B) Pad width	155 ft.
C) Pit depth	8 ft.
D) Pit length	80 ft.
E) Pit width	30 ft.
F) Max cut	12.7 ft.
G) Max fill	13.3 ft.
H) Total cut yds.	5,610 cu. yds.

I) Pit location	<b>north side</b>
J) Top soil location	<b>south side</b>
K) Access road location	<b>west end</b>
L) Flare pit	<b>corner C</b>

Please see the attached location diagram for additional details.

All pits will be fenced according to the following minimum standards:

- a) Thirty nine inch net wire shall be used with at least one strand of wire on top of the net wire. Barbed wire is not necessary if pipe or some type of reinforcement rod is attached to the top of the entire fence.
- b) The net wire shall be no more than 2 inches above the ground. The barbed wire shall be 3 inches above the net wire. Total height of the fence shall be at least 42 inches.
- c) Corner posts shall be cemented and/or braced in such a manner to keep the fence tight at all times.
- d) Standard steel, wood or pipe posts shall be used between the corner braces. Maximum distance between any two posts shall be no greater than 16 ft.
- e) All wire shall be stretched by using a stretching device before it is attached to the corner posts.

**10. Plans for restoration of the surface**

Prior to construction of the location, the top 6 inches of soil material will be stripped off the location, road and pipeline and the pit area. The topsoil removed and piled will amount to approximately 1,000 cubic yards of material on the location. **Topsoil will be stockpiled in one distinct pile for the**

**location and wind rowed along side the pipeline for soil from the road and pipeline.** Placement of the topsoil is noted on the attached location plat. **The topsoil pile from the location will be seeded as soon as the soil is stock piled** with the seed mix provided by the Utah Division of Oil Gas and Mining. When all drilling and completion activities have been completed and the pit and pipeline trench back-filled the topsoil will be spread. **The disturbed area will be seeded when the topsoil has been spread.** The unused portion of the location (the area outside the dead men) will be recontoured.

The dirt contractor will be provided with an approved copy of the surface use plan prior to construction activities.

Changes to the drainage during the construction activities shall be restored to its original line of flow or as near as possible when the pit is back-filled.

All disturbed areas will be recontoured to the approximate natural contours. Prior to back filling the pit the fences around the reserve pit will be removed.

The reserve pit will be reclaimed within 90 days of well completion. If the reserve pit has not dried sufficiently to allow back filling, an extension on the time requirement for back filling the pit will be requested. Once reclamation activities have begun, they shall be completed within 30 days.

After the reserve pit has been reclaimed, no depressions in the soil covering the reserve pit will be allowed. The objective is to keep seasonal rainfall and run off from seeping into the soil used to cover the reserve pit. Diversion ditches and water bars will be used to divert run off as needed.

When restoration activities have been completed, the location site and new access road cuts and shoulders shall be reseeded. Prior to reseeding, all disturbed areas will be scarified and left with a rough surface.

A) Seeding dates:

Seed will be spread when the topsoil is stock piled and when reclamation work is performed.

B) Seed Mix

At such time as the well is plugged and abandoned the operator will submit a surface reclamation plan to the surface management agency for prescribed seed mixture and reseeding requirements.

**The seed mix and quantity required will be provided by the State of Utah Division of Oil Gas and Mining**

11. Surface ownership:

Access road	State of Utah, SITLA
Location	State of Utah, SITLA
Pipeline	State of Utah, SITLA

12. Other information

A) Vegetation:

The vegetation coverage is slight. The majority of the existing vegetation consists of sagebrush, Rabbit brush, Bitter brush and Indian rice grass are also found on the location.

B) Dwellings:

There are no dwellings or other facilities within a one mile radius of the location.

C) Archeology:

The location has not been surveyed. The surveys have been scheduled and copy of the surveys will be forwarded to your office.

If, during operations, any archaeological or historical sites, or any objects of antiquity (subject to the antiquities act of June 8, 1906) are discovered, all operations which would effect such sites will be suspended and the discovery reported promptly to the surface management agency.

**D) Water:**

**The nearest water is Serviceberry Creek 1,000 feet south of the location.**

**E) Chemicals:**

No pesticides, herbicides or other possible hazardous chemicals will be used without the Division of Wildlife Resources approval.

**F) Notification:**

The Division of Wildlife Resources and the Division of Oil and Gas will be notified as follows.

**a) Location construction**

At least forty eight (48) hours prior to construction of location and access roads

**b) Location completion**

Notification will be given 24 hr prior to moving the drilling rig on location.

**c) Spud notice**

At least twenty-four (24) hours prior to spudding the well.

**d) Casing string and cementing**

At least twenty-four (24) hours prior to running casing and cementing all casing strings.

**e) BOP and related equipment tests**

At least twenty-four (24) hours prior to initial pressure tests.

**f) First production notice**

Within five (5) business days after the new well begins, or production resumes after well has been off production for more than ninety 90 days.

**g) Completion and work over**

At least twenty-four (24) hours prior to moving the rig on location.

Division of Wildlife Resource  
434-636-0260

Division of Oil, Gas, and Mining.  
801-538-5340

**H) Flare pit:**

The flare pit will be located in corner C of the reserve pit out side the pit fence and 100 feet from the bore hole on the **north side of the location**. All fluids will be removed from the pit within 48 hours of occurrence.

**13. Lessees or Operator's representative and certification**

**A) Representative**

William A. Ryan

Rocky Mountain Consulting  
350 South 800 East  
Vernal, Utah 84078

Office	435-789-0968
Fax	435-789-0970
Cellular	435-828-0968

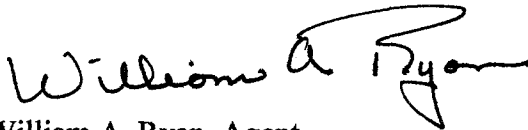
All lease operations will be conducted in such a manner that full compliance is made with all applicable laws and regulations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

This drilling permit will be valid for a period of one year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.

B) Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill-site and access route, that I am familiar with the conditions which presently exist, that the statements made in this plan are, to the best of my knowledge and belief, true and correct, and that the work associated with the operation proposed herein will be performed by **Marathon Oil CO.** and its contractors and subcontractors in conformity with this plan and terms and conditions with this plan and the terms and conditions under which it is approved.

Date Feb. 14, 2000



William A. Ryan, Agent  
Rocky Mountain Consulting

Onsite Date:

### **Statement of use of Hazardous Material**

No chemical(s) from the EPA's Consolidated list of Chemicals subject to Reporting under Title III of the Superfund Amendments and Reauthorization, Act (SARA) of 1986.

Will be used, produced, transported, stored, disposed, or associated with the proposed action, No extremely hazardous substances, as defined in 40 cfr 355, will be used, produced, stored, transported, disposed, or associated with the proposed action.

If you require additional information please contact:

William A Ryan  
Agent  
Rocky Mountain Consulting  
350 S. 800 E.  
Vernal Utah, 84078

Telephone  
(435) 789-0968 office  
(435) 828-0968 cellular  
(435) 789-0970 fax

275'

190'

PUMP JACK  
W/GAS MOTORSMALL PUMP  
FOR SCALE  
INHIBITORCATHODIC  
PROTECTION2"-4" TUBING GAS LINE  
2"-4" CASING WATER LINE

10.2'

SEPARATOR

4"-6" GAS TO GATHERING

7.7'

GATHERING

2"-4" WATER TO GATHERING

2" BLOWDOWN LINE

TANK  
OR  
PIT  
OPTIONALSEP 20"00 X 8'-0" HIGH  
2" METER TUBE TO AGA REPORT #8  
1" HALLIBURTON TURBINE WATER  
METERMARATHON OIL COMPANY  
ROCKY MOUNTAIN REGIONDRUNKARD'S WASH  
CARBON COUNTY, UTAH

TYPICAL FACILITY

NOT TO SCALE

01/00

MARATHON OIL CO. - OPERATOR  
SUBJECT TO MARATHON'S SITE  
SECURITY PLAN LOCATED AT THE  
SUPERINTENDENT'S OFFICE

Approvals:

Production Foreman

Operations

Superintendent

## LEGEND

—————	OIL/CONDENSATE
-----	EMULSION
-----	RECYCLE/REJECT
-----	WATER OFF & DRAIN
-----	GAS FUEL
-----	GAS OFF
-----	RUPTURE
-----	POP OFF
⊗	VALVE
A, B, C, etc.	SEALED VALVES
M	METER

[ ] SPCC DIKES

PUT typical.fac

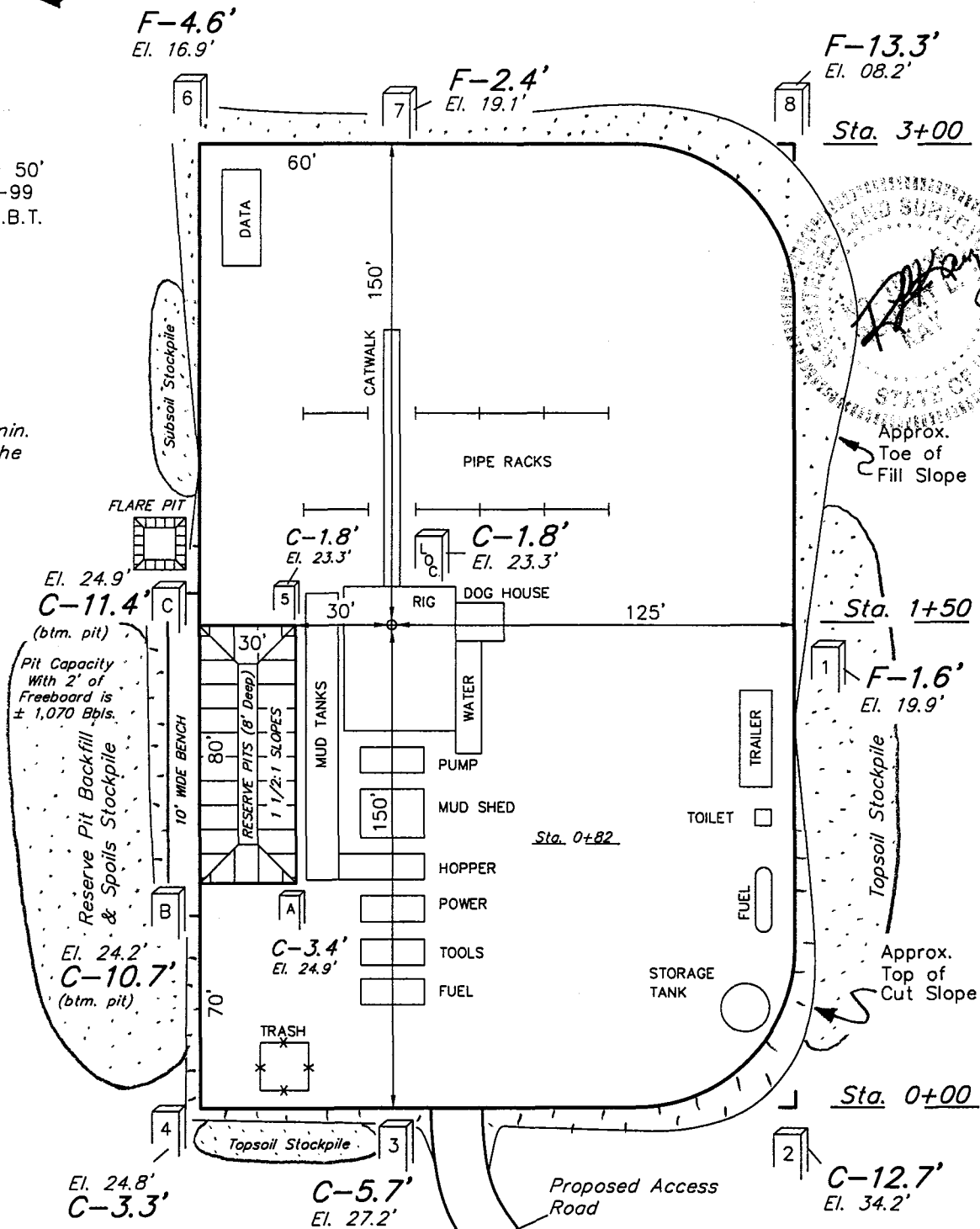
## LOCATION LAYOUT FOR

SECTION 15, T15S, R9E, S.L.B.&M.

DATE: 1-5-99

Drawn By: C.B.T.

Flare Pit is to be located a min. of 100' from the Well Head.



Elev. Graded Ground at Location Stake = 6021.5'

UINTAH ENGINEERING & LAND SURVEYING  
85 So. 200 East • Vernal, Utah 84078 • (435) 789-1017

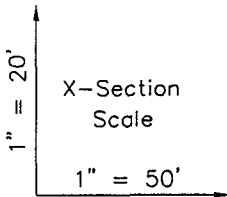
# MARATHON OIL CO.

## TYPICAL CROSS SECTIONS FOR

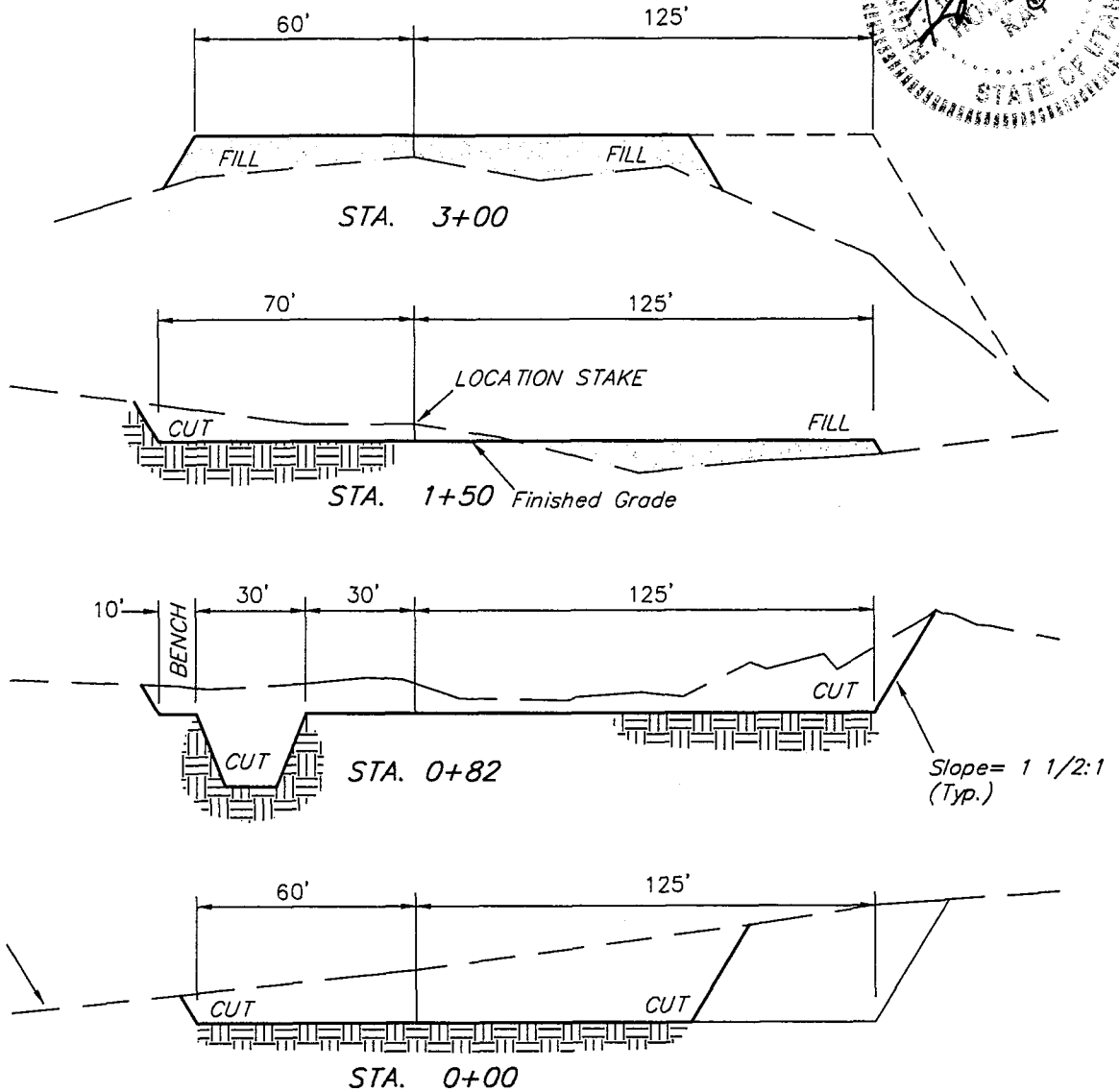
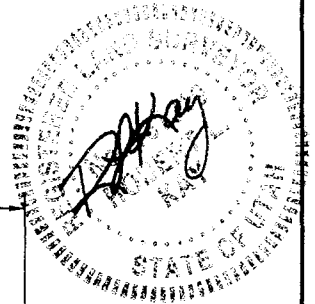
SITLA #34-15

SECTION 15, T15S, R9E, S.L.B.&M.

1162' FSL 1337' FEL



DATE: 1-5-99  
Drawn By: C.B.T.

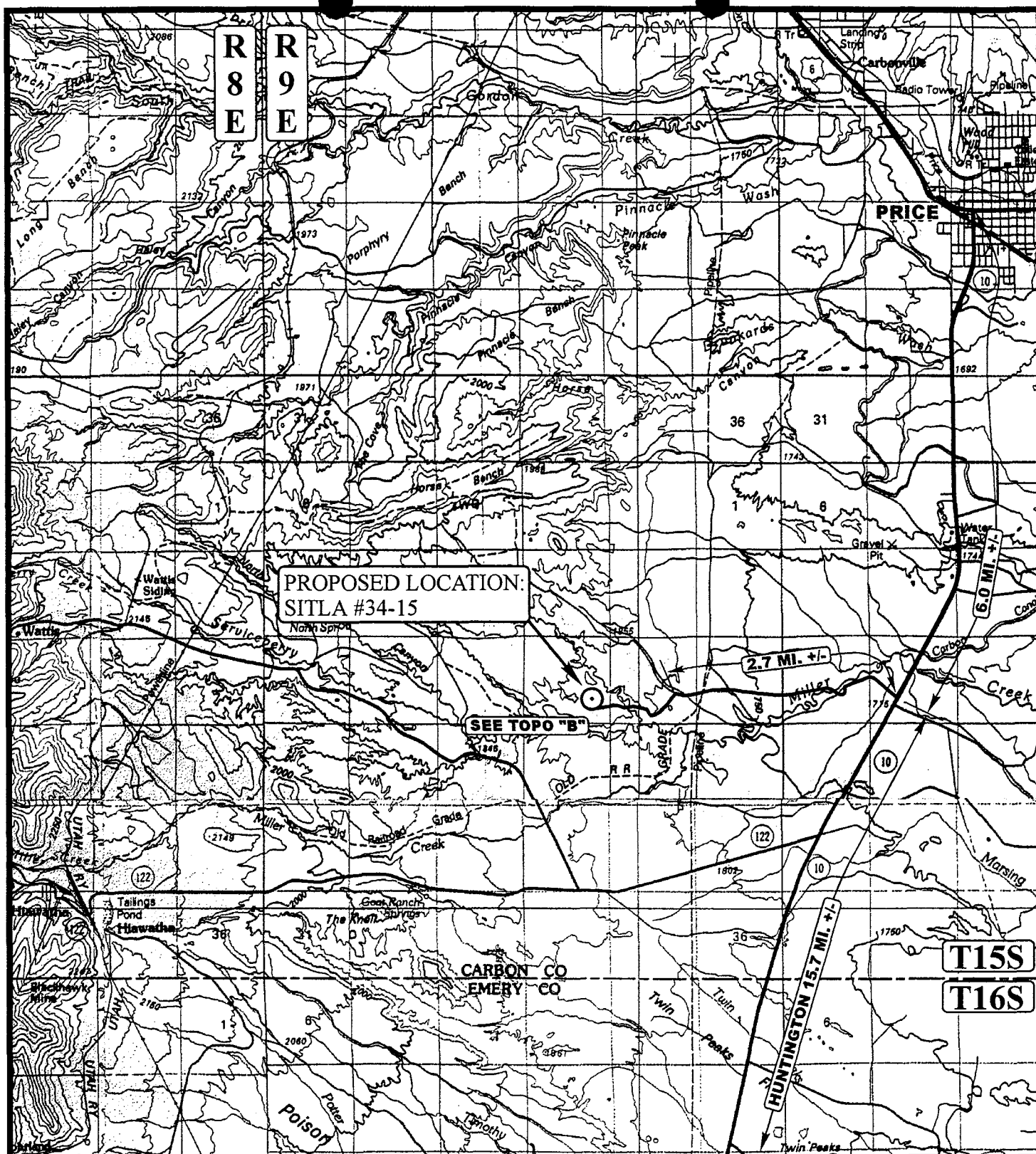


### APPROXIMATE YARDAGES

(6") Topsoil Stripping = 1,030 Cu. Yds.  
Remaining Location = 4,580 Cu. Yds.  
TOTAL CUT = 5,610 CU.YDS.  
FILL = 4,170 CU.YDS.

EXCESS MATERIAL AFTER  
5% COMPACTION = 1,220 Cu. Yds.  
Topsoil & Pit Backfill  
(1/2 Pit Vol.) = 1,220 Cu. Yds.  
EXCESS UNBALANCE  
(After Rehabilitation) = 0 Cu. Yds.

UINTAH ENGINEERING & LAND SURVEYING  
85 So. 200 East • Vernal, Utah 84078 • (435) 789-1017



### LEGEND:

**PROPOSED LOCATION**

**MARATHON OIL CO.**

**SITLA #34-15**

**SECTION 15, T15S, R9E, S.L.B.&M.**

**1162' FSL 1337' FEL**

# UELS

**Uintah Engineering & Land Surveying**  
85 South 200 East Vernal, Utah 84078  
(435) 789-1017 \* FAX (435) 789-1813

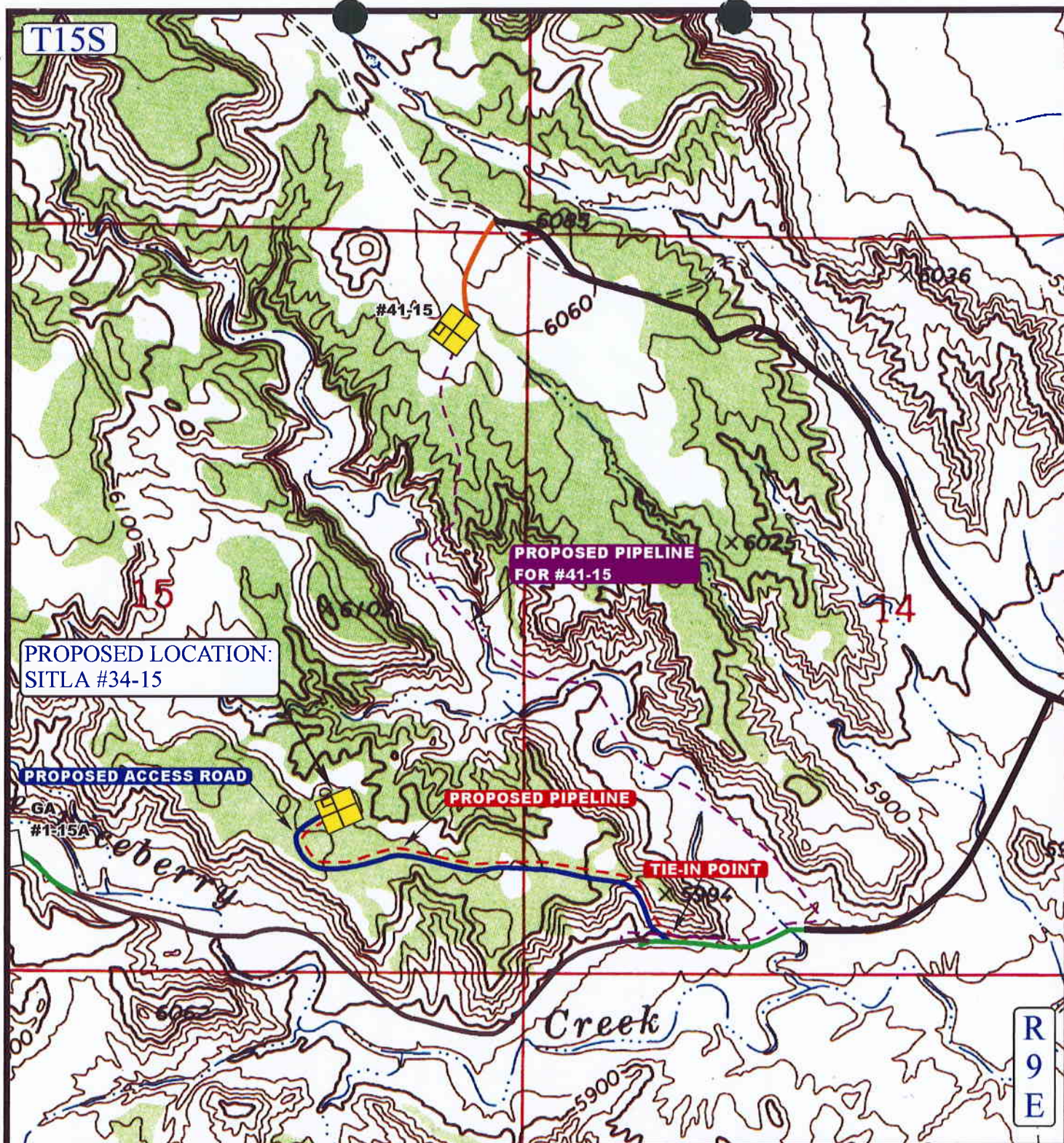
TOPOGRAPHIC  
MAP

12	28	99
MONTH	DAY	YEAR

SCALE: 1 : 100,000    DRAWN BY: J.L.G.    REVISED: 00-00-00

**A**  
**TOPO**





**APPROXIMATE TOTAL PIPELINE DISTANCE = 3200' +/-**

**LEGEND:**

- — — — — EXISTING PIPELINE
- - - - - PROPOSED PIPELINE
- — — — — PROPOSED ACCESS



**MARATHON OIL CO.**

**SITLA #34-15**

**SECTION 15, T15S, R9E, S.L.B.&M.**

**1162' FSL 1337' FEL**



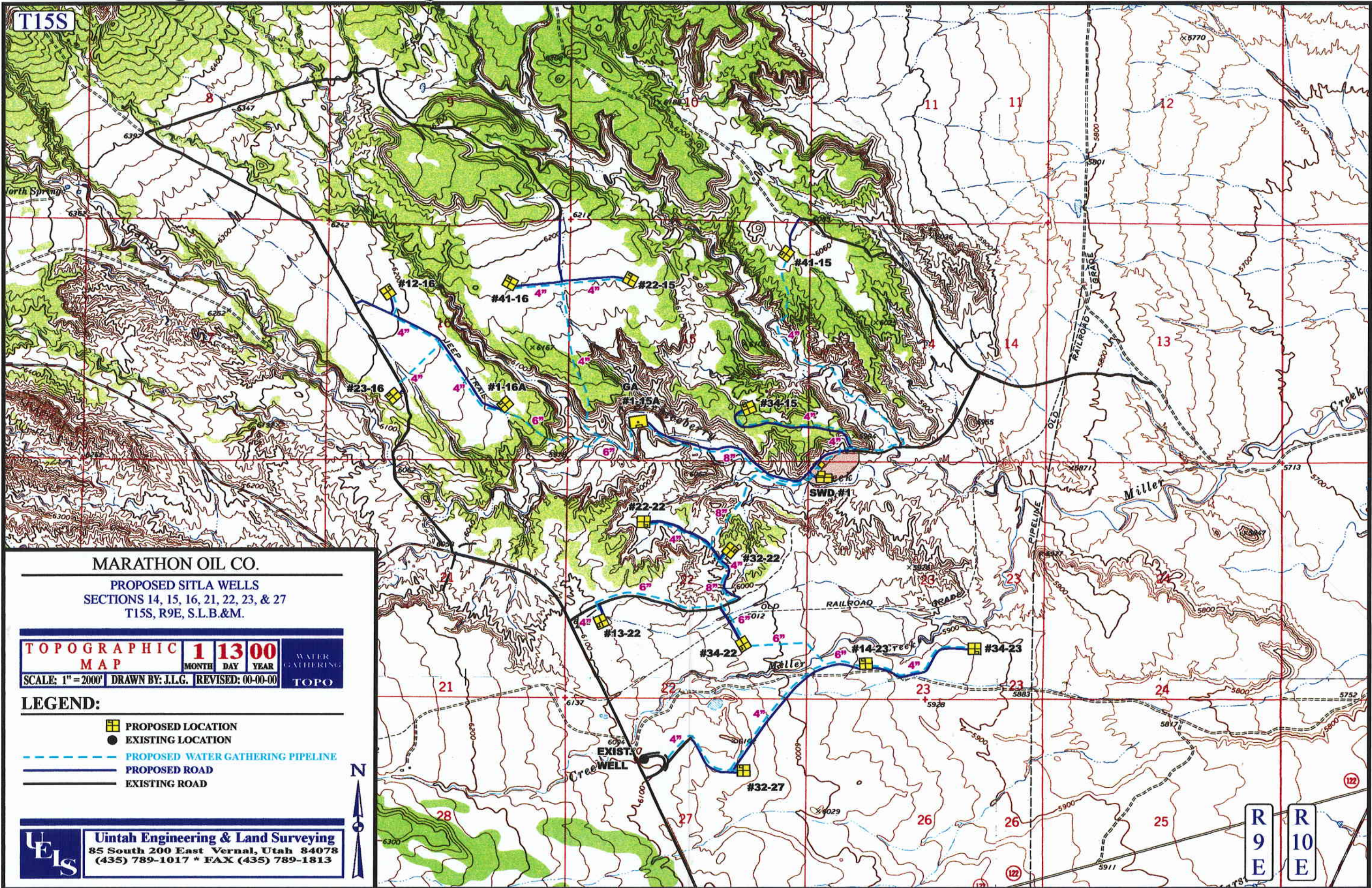
**Uintah Engineering & Land Surveying**  
 85 South 200 East Vernal, Utah 84078  
 (435) 789-1017 \* FAX (435) 789-1813

**TOPOGRAPHIC  
 MAP**

**12 28 99**  
 MONTH DAY YEAR

SCALE: 1" = 1000' DRAWN BY: J.L.G. REVISED: 00-00-00





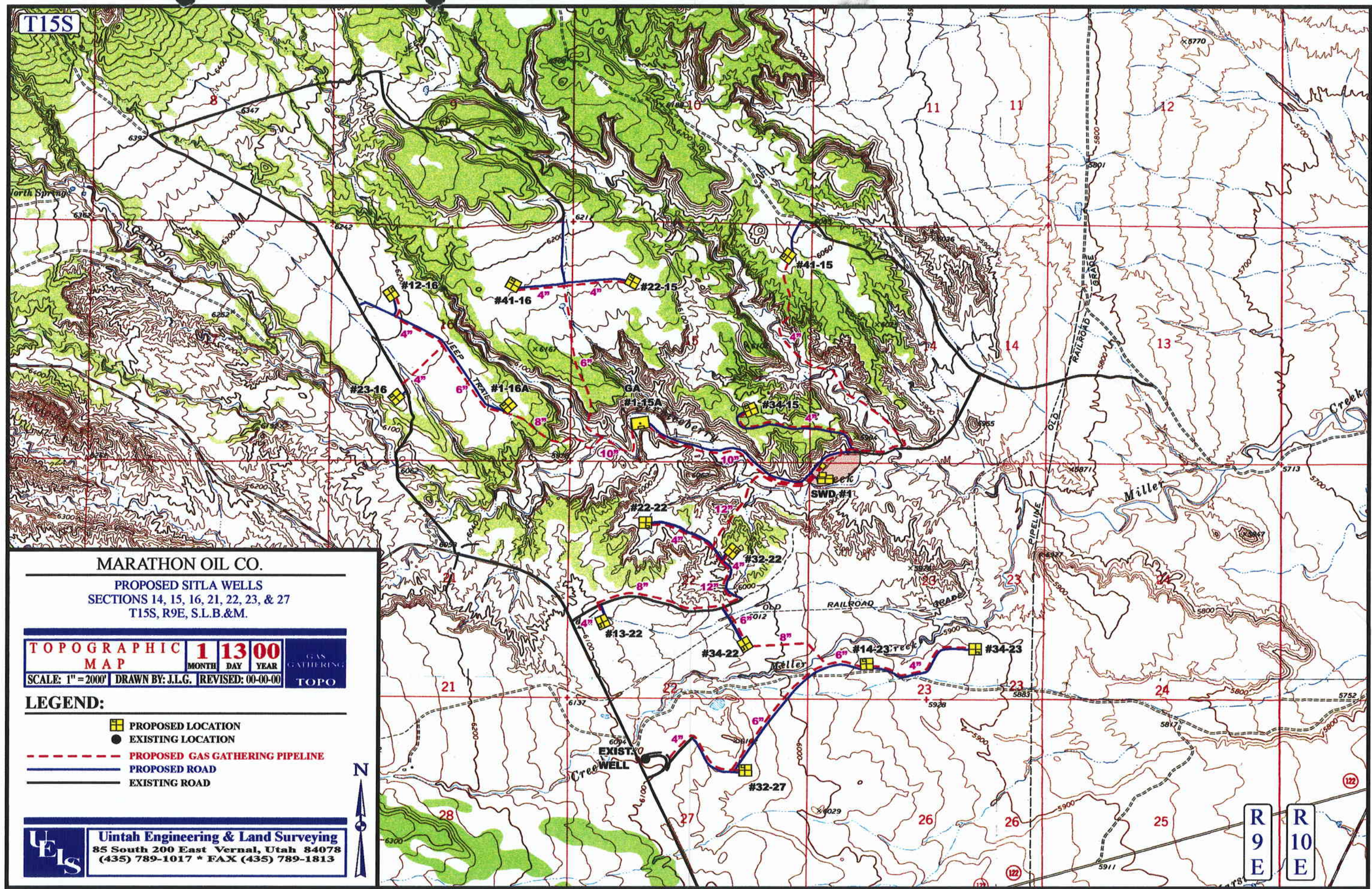
MARATHON OIL CO.  
PROPOSED SITLA WELLS  
SECTIONS 14, 15, 16, 21, 22, 23, & 27  
T15S, R9E, S.L.B.&M.

TOPOGRAPHIC MAP  
SCALE: 1" = 2000' DRAWN BY: J.L.G. REVISED: 00-00-00  
1 13 00  
MONTH DAY YEAR  
WATER GATHERING TOPO

- LEGEND:
- PROPOSED LOCATION
  - EXISTING LOCATION
  - PROPOSED WATER GATHERING PIPELINE
  - PROPOSED ROAD
  - EXISTING ROAD

U E L S  
Uintah Engineering & Land Surveying  
85 South 200 East Vernal, Utah 84078  
(435) 789-1017 \* FAX (435) 789-1813

R 9 E  
R 10 E



MARATHON OIL CO.  
PROPOSED SITLA WELLS  
SECTIONS 14, 15, 16, 21, 22, 23, & 27  
T15S, R9E, S.L.B.&M.

TOPOGRAPHIC MAP  
SCALE: 1" = 2000'  
DRAWN BY: J.L.G.  
REVISED: 00-00-00  
GAS GATHERING TOPO  
1 13 00  
MONTH DAY YEAR

LEGEND:  
PROPOSED LOCATION  
EXISTING LOCATION  
PROPOSED GAS GATHERING PIPELINE  
PROPOSED ROAD  
EXISTING ROAD

U&L  
Uintah Engineering & Land Surveying  
85 South 200 East Vernal, Utah 84078  
(435) 789-1017 \* FAX (435) 789-1813

R 9 E  
R 10 E

WORKSHEET  
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 02/16/2000

API NO. ASSIGNED: 43-007-30666

WELL NAME: SITLA 34-15

OPERATOR: MARATHON OIL COMPANY ( N3490 )

CONTACT: BILL RYAN, AGENT

PHONE NUMBER: 435-789-0968

PROPOSED LOCATION:

SWSE 15 150S 090E

SURFACE: 1162 FSL 1337 FEL

BOTTOM: 1162 FSL 1337 FEL

CARBON

UNDESIGNATED ( 2 )

LEASE TYPE: 3 - State

LEASE NUMBER: ML-47978-OBA

SURFACE OWNER: 3 - State

PROPOSED FORMATION: FRSD

INSPECT LOCATN BY: / /

Tech Review	Initials	Date
Engineering	<i>epk</i>	3-21-00
Geology		
Surface		

RECEIVED AND/OR REVIEWED:

☒ Plat  
☒ Bond: Fed[] Ind[] Sta[3] Fee[]  
(No. 5922542 )  
☒ Potash (Y/N)  
☒ Oil Shale (Y/N) \*190 - 5 (B)  
☒ Water Permit  
(No. MUNICIPAL )  
☒ RDCC Review (Y/N)  
(Date: )  
☒ Fee Surf Agreement (Y/N)

LOCATION AND SITING:

☐ R649-2-3. Unit  
☐ R649-3-2. General  
Siting:  
☐ R649-3-3. Exception  
☒ Drilling Unit  
Board Cause No: 243-1 (160')  
Eff Date: 10-13-98  
Siting: Unit boundary & 132' between wells.  
☐ R649-3-11. Directional Drill

COMMENTS: Need Presite. (Conducted 3-9-00)

STIPULATIONS: ① STATEMENT OF BASIS



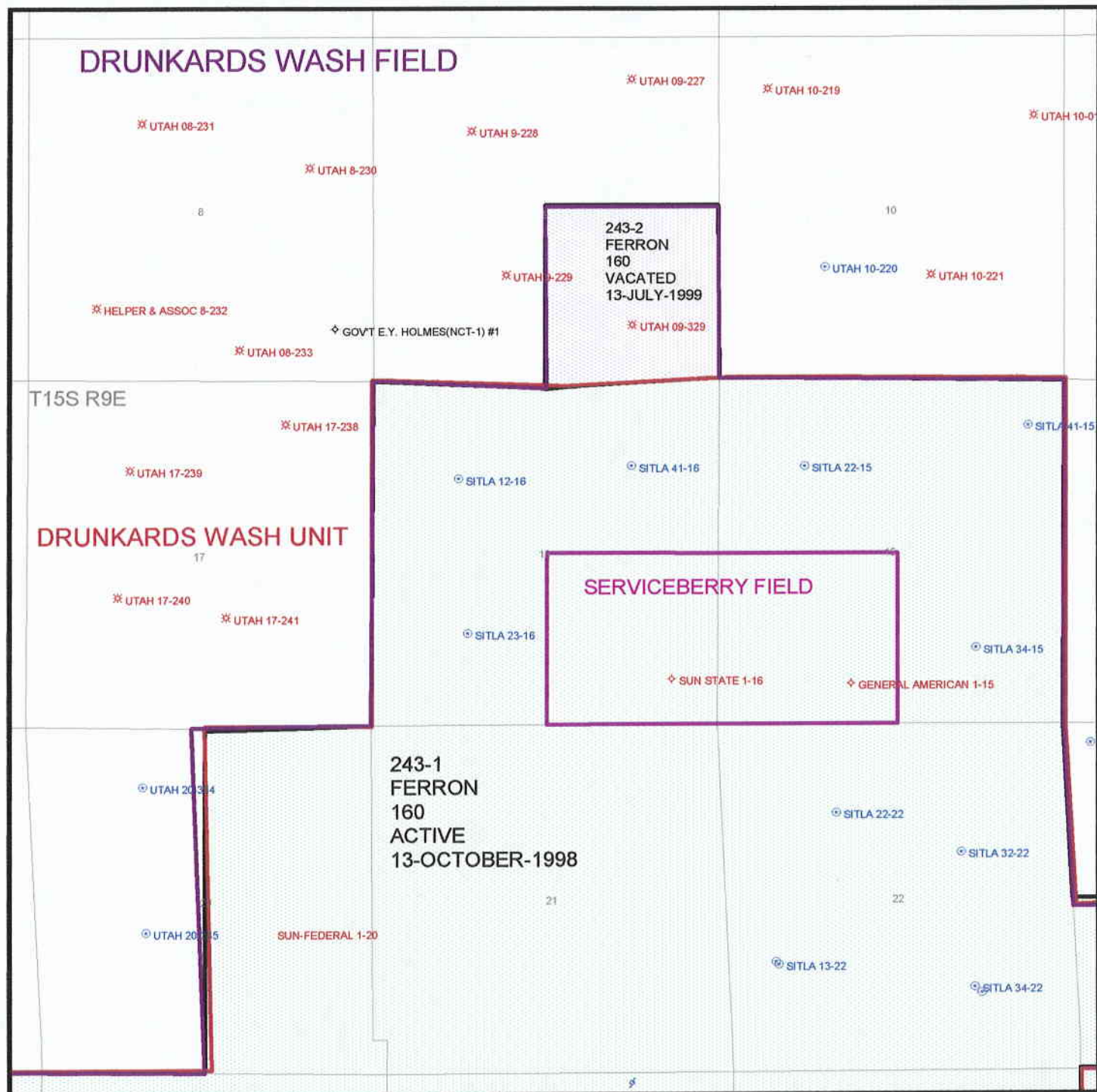
**Serving the Industry, Protecting the Environment**

OPERATOR: MARATHON OIL COMPANY (N3490)

FIELD: UNDESIGNATED (002)

SEC. 15 & 16, T 15 S, R 9 E

COUNTY: CARBON CAUSE No: 243-1 160 ACRES



PREPARED  
DATE: 17-Feb-2000

## ON-SITE PREDRILL EVALUATION

### Division of Oil, Gas and Mining

OPERATOR: Marathon Oil Company

WELL NAME & NUMBER: SITLA #34-15

API NUMBER: 43-007-30666

LEASE: SITLA FIELD/UNIT: Drunkards Wash

LOCATION: 1/4, 1/4 SWSE Sec: 15 TWP: 15 S RNG: 9 E 1337 FEL 1162 FSL  
LEGAL WELL SITING: 660' SEC. LINE; 660' 1/4, 1/4 LINE; 1320' ANOTHER WELL.

GPS COORD (UTM): X = 508964; Y = 4373894

SURFACE OWNER: SITLA

### PARTICIPANTS

C. Kierst (DOGM), C. Colt (DWR), B. Ryan (Rocky Mtn. Consulting), D. Kay (U.E.L.S.), Randy Meabon (Marathon), D. Wilcox (Nielson Construction, C. Arterbery (drilling consultant)

### REGIONAL/LOCAL SETTING & TOPOGRAPHY

Western margin of Colorado Plateau/~6 miles east of the base of Wasatch Plateau. The location is on Quaternary/Tertiary Pediment Mantle covering the westward-dipping Blue Gate Member of the Mancos Shale (below the Garley Canyon Beds). The pad is on a southeastward-trending, elongate, low bluff. The pad is ~2.25 miles north of the intersection of the Wattis Highway and State Highway 122. It is ~1 mile north northwest of Miller Creek and ~1000' northeast of Serviceberry Creek. Igneous intrusive dikes having surface expression are in the area.

### SURFACE USE PLAN

CURRENT SURFACE USE: Grazing and wildlife habitat.

PROPOSED SURFACE DISTURBANCE: 300' X 185' pad with 80' X 30' X 8' inboard pit, ~0.6 mile of new road are requested.

LOCATION OF EXISTING WELLS WITHIN A 1 MILE RADIUS: 2 SGW status CBM wells (Marathon), 1 APD status CBM location (Fleet), 3 PGW status CBM production wells (RGC) and 5 NEW status CBM locations (Marathon).

LOCATION OF PRODUCTION FACILITIES AND PIPELINES: Questar gas pipeline ~1 1/4 miles east of the pad (Questar pipeline runs north-south).

SOURCE OF CONSTRUCTION MATERIAL: Material will be borrowed from the pad at the time of construction. Water turnouts and berms will be placed as needed and the road and pad will be graveled as needed. Ancillary gravel needs will be satisfied by the dirt contractor from legally permitted sources. Water will be from the City of Price.

ANCILLARY FACILITIES: none

### WASTE MANAGEMENT PLAN:

Portable chemical toilets which will be emptied into the municipal waste treatment system; garbage cans on location will be emptied into

centralized dumpsters which will be emptied into an approved landfill. No crude oil is expected to be produced. Drilling fluid, completion frac fluid and cuttings will be buried in the pit after evaporation and slashing the pit liner. Produced water will be gathered to the evaporation pit and eventually injected into the Navajo Sandstone via a Marathon-operated salt water disposal well. Used oil from drilling operations and support is hauled to a used oil re-cycler and re-used.

#### ENVIRONMENTAL PARAMETERS

AFFECTED FLOODPLAINS AND/OR WETLANDS: Location is ~1 mile north northwest of Miller Creek, a year-round flowing watercourse, and ~1000' northeast of seasonal, ephemeral Serviceberry Creek. The Price River is about 6.5 miles to the northeast.

FLORA/FAUNA: Sagebrush, juniper, pinyon, rabbit brush bitter brush and indian rice grass / birds, lizards, coyotes, rodents, raptors, elk, deer, reptiles. Nesting raptor issues - exception granted if drilled after 7/15/2000. Workovers needed between 2/1 and 7/15 should be coordinated with DWR to minimize nest abandonment. Big game winter range.

SOIL TYPE AND CHARACTERISTICS: Moderately-permeable silty soil on Quaternary/Tertiary Pediment Mantle. (SM-GM)

SURFACE FORMATION & CHARACTERISTICS: Quaternary/Tertiary Pediment Mantle on the Blue Gate Member (below Garley Canyon Beds) of the Mancos Shale.

EROSION/SEDIMENTATION/STABILITY: Stable.

PALEONTOLOGICAL POTENTIAL: None observed.

#### RESERVE PIT

CHARACTERISTICS: Dugout, earthen pit, as above.

LINER REQUIREMENTS (Site Ranking Form attached): Synthetic liner

#### SURFACE RESTORATION/RECLAMATION PLAN

As per State surface agreement.

SURFACE AGREEMENT: Agreement filed with State.

CULTURAL RESOURCES/ARCHAEOLOGY: Completed but not yet filed with the State.

#### OTHER OBSERVATIONS/COMMENTS

Exception location. Drill after 7/15 because of active raptor nests.

#### ATTACHMENTS:

4 Photos were taken of this location. (5-8)

Chris Kierst  
DOGM REPRESENTATIVE

9-March-2000 10:25 AM  
DATE/TIME

**Evaluation Ranking Criteria and Ranking Score  
For Reserve and Onsite Pit Liner Requirements**

<u>Site-Specific Factors</u>	<u>Ranking</u>	<u>Site Ranking</u>
Distance to Groundwater (feet)		
>200	0	
100 to 200	5	
75 to 100	10	
25 to 75	15	
<25 or recharge area	20	<u>0</u>
Distance to Surf. Water (feet)		
>1000	0	
300 to 1000	2	
200 to 300	10	
100 to 200	15	
< 100	20	<u>0</u>
Distance to Nearest Municipal Well (feet)		
>5280	0	
1320 to 5280	5	
500 to 1320	10	
<500	20	<u>0</u>
Distance to Other Wells (feet)		
>1320	0	
300 to 1320	10	
<300	20	<u>0</u>
Native Soil Type		
Low permeability	0	
Mod. permeability	10	
High permeability	20	<u>10</u>
Fluid Type		
Air/mist	0	
Fresh Water	5	
TDS >5000 and <10000	10	
TDS >10000 or Oil Base Mud Fluid	15	
containing significant levels of hazardous constituents	20	<u>0</u>
Drill Cuttings		
Normal Rock	0	
Salt or detrimental	10	<u>0</u>
Annual Precipitation (inches)		
<10	0	
10 to 20	5	
>20	10	<u>5</u>
Affected Populations		
<10	0	
10 to 30	6	
30 to 50	8	
>50	10	<u>0</u>
Presence of Nearby Utility Conduits		
Not Present	0	
Unknown	10	
Present	15	<u>0</u>

**Final Score**

15

(Level II Sensitivity)

# DIVISION OF OIL, GAS AND MINING

## APPLICATION FOR PERMIT TO DRILL STATEMENT OF BASIS

**Operator Name:** Marathon Oil Company

**Name & Number:** SITLA #34-15

**API Number:** 43-007-30666

**Location:** 1/4, 1/4 SWSE Sec. 15 T. 15 S R. 9 E **County:** Carbon

### **Geology/Ground Water:**

The surficial Quaternary/Tertiary Pediment Mantle is of limited areal extent and unlikely to contain a ground water resource. No high quality ground water is expected to be encountered. The proposed casing and cement program will adequately isolate any zones of water penetrated. Underground water well water rights exist within a mile radius involving two River Gas CBM production wells in Section 14.

**Reviewer:** C. Kierst **Date:** 3/16/2000

### **Surface:**

The silty, moderately-permeable soil is developed on Quaternary/Tertiary Pediment Mantle covered bluffs protecting erosional remnants of the Blue Gate Member of the Mancos Shale. The nearest moving surface waters are ~1 mile southeast in Miller Creek. Pit integrity will be maintained by the use of a synthetic liner. There are no nearby culinary or irrigation water supply wells. The site was photographed and characterized on 3/9/2000. Provision was made to ensure site rehabilitation, litter and waste control, preservation of drainage patterns and the integrity of local infrastructure, groundwater and other resources. The well utilities and water gathering system will follow the approach roadway.

**Reviewer:** C. Kierst **Date:** 3/16/2000

### **Conditions of Approval/Application for Permit to Drill:**

- 1) Culverts sufficient to manage expected runoff, standing and surface water shall be installed in crossed drainages.
- 2) Berm location and pit.
- 3) Minimum 12 mil synthetically lined pit and blooie pit.
- 4) Site infrastructure as per drilling location plat.
- 5) Dust abatement will be used while drilling and on access roads.
- 6) 404 Dredge and Fill Permits must be obtained when required or waived by the U.S. Army Corp. of Engineers or their authorized agents for crossings of any watercourses by pipelines or access roads, or prior to any bank or streambed modifications.
- 7) Compliance with terms of the governing EIS.

UTAH DIVISION OF WATER RIGHTS  
WATER RIGHT POINT OF DIVERSION PLOT CREATED THU, MAR 16, 2000, 1:46 PM  
PLOT SHOWS LOCATION OF 5 POINTS OF DIVERSION

PLOT OF AN AREA WITH A RADIUS OF 5280 FEET FROM A POINT  
N 1162 FEET, W 1337 FEET OF THE SE CORNER,  
SECTION 15 TOWNSHIP 15S RANGE 9E SL BASE AND MERIDIAN

PLOT SCALE IS APPROXIMATELY 1 INCH = 2000 FEET

N O R T H

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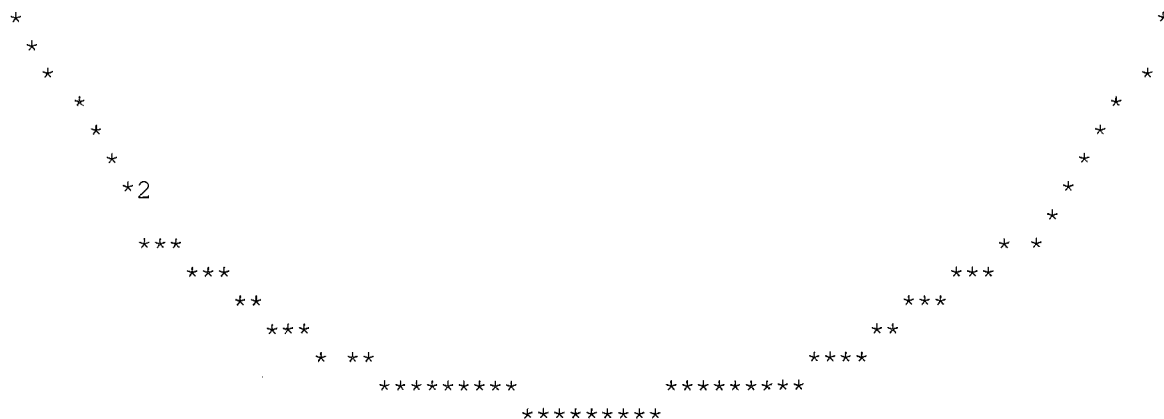
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UTAH DIVISION OF WATER RIGHTS  
NWPLAT POINT OF DIVERSION LOCATION PROGRAM

MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER DEPTH YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH EAST CNR SEC TWN RNG B&M
0	91 4952	5.0000	.00	Underground Water Wells	S 980 E 1385	NW 14 15S 9E SL PRIORITY DATE: 06/23/19 Northport
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER		
				River Gas Corporation	511 Energy Center Blvd.	
0	a19276	5.0000	.00	Underground Water Wells	S 980 E 1385	NW 14 15S 9E SL PRIORITY DATE: 08/31/19 Northport
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER		
				River Gas Corporation	511 Energy Center Blvd.	
1	91 4952	5.0000	.00	Underground Water Wells	N 907 E 1392	SW 14 15S 9E SL PRIORITY DATE: 06/23/19 Northport
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER		
				River Gas Corporation	511 Energy Center Blvd.	
1	a19276	5.0000	.00	Underground Water Wells	N 907 E 1392	SW 14 15S 9E SL PRIORITY DATE: 08/31/19 Northport
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER		
				River Gas Corporation	511 Energy Center Blvd.	

2	<u>91 4980</u>	.0000	4.73 Unnamed Washes	S	2300	E	200	SW	15	15S	9E	SL
			WATER USE(S): STOCKWATERING									PRIORITY DATE: 01/26/19
			State of Utah School & Institutional Tru 675 East 500 South, 5th Floor									Salt Lake City

---

Well name:

**3-00 Marathon SITLA #34-15**Operator: **Marathon**String type: **Surface**

Project ID:

43-007-30666

Location: **Carbon County****Design parameters:****Collapse**

Mud weight: 8.330 ppg

Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No

Surface temperature: 75 °F

Bottom hole temperature: 79 °F

Temperature gradient: 1.40 °F/100ft

Minimum section length: 160 ft

Cement top: 0 ft

**Burst**

Max anticipated surface pressure: 0 psi

Internal gradient: 0.433 psi/ft

Calculated BHP 130 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)

8 Round LTC: 1.80 (J)

Buttress: 1.60 (J)

Premium: 1.50 (J)

Body yield: 1.50 (B)

Non-directional string.

**Re subsequent strings:**

Next setting depth: 1,850 ft

Next mud weight: 8.330 ppg

Next setting BHP: 801 psi

Fracture mud wt: 19.250 ppg

Fracture depth: 1,850 ft

Injection pressure 1,850 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft <sup>3</sup> )
1	300	8.625	24.00	J-55	ST&C	300	300	7.972	14.4
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	130	1370	10.56	130	2950	22.73	6	244	38.74 J

Prepared RJK  
by: Utah Dept. of Natural ResourcesDate: March 21,2000  
Salt Lake City, Utah**ENGINEERING STIPULATIONS: NONE**

Collapse strength is based on the Westcott, Dunlop &amp; Kemler method of biaxial correction for tension.

Collapse is based on a vertical depth of 300 ft, a mud weight of 8.33 ppg The casing is considered to be evacuated for collapse purposes.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*

Well name:

**3-00 Marathon SITLA #34-15**Operator: **Marathon**String type: **Production**

Project ID:

43-007-30666

Location: **Carbon County****Design parameters:****Collapse**

Mud weight: 8.330 ppg

Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No

Surface temperature: 75 °F

Bottom hole temperature: 114 °F

Temperature gradient: 1.40 °F/100ft

Minimum section length: 368 ft

Cement top: 1,685 ft

**Burst**

Max anticipated surface pressure: 0 psi

Internal gradient: 0.433 psi/ft

Calculated BHP 1,195 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)

8 Round LTC: 1.80 (J)

Buttress: 1.60 (J)

Premium: 1.50 (J)

Body yield: 1.50 (B)

Non-directional string.

Tension is based on buoyed weight.

Neutral point: 2,413 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	2762	5.5	17.00	L-80	LT&C	2762	2762	4.767	95.2
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	1195	6290	5.26	1195	7740	6.48	41	338	8.24 J

Prepared RJK  
by: Utah Dept. of Natural Resources

Date: March 21,2000  
Salt Lake City, Utah

**ENGINEERING STIPULATIONS: NONE**

Collapse strength is based on the Westcott, Dunlop &amp; Kemler method of biaxial correction for tension.

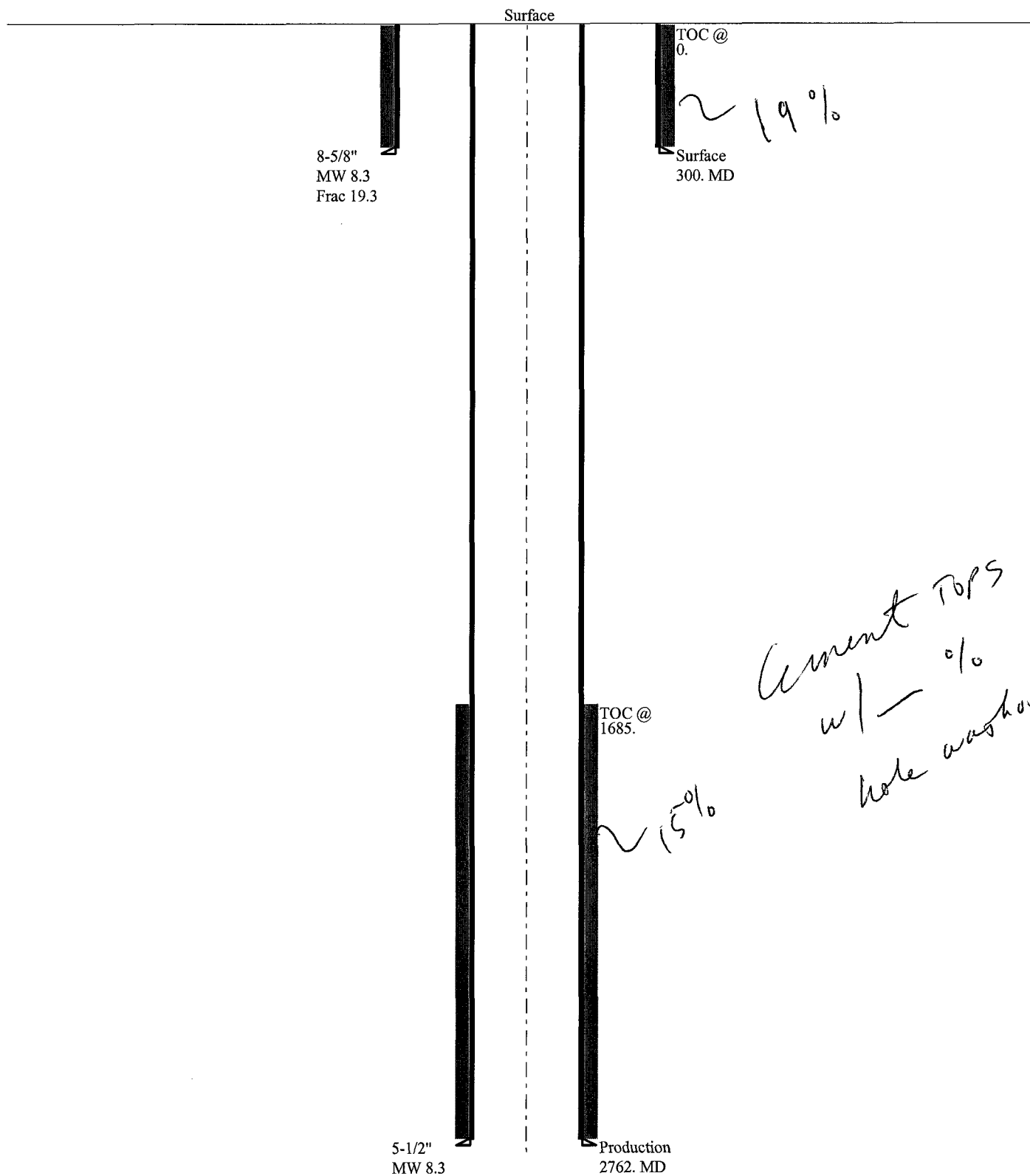
Collapse is based on a vertical depth of 2762 ft, a mud weight of 8.33 ppg. The casing is considered to be evacuated for collapse purposes.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*

# 3-00 Marathon SITLA #34

## Casing Schematic





# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

March 23, 2000

Marathon Oil Company  
1501 Stampede Avenue  
Cody, WY 82414

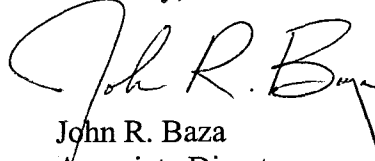
Re: SITLA 34-15 Well, 1162' FSL, 1337' FEL, SW SE, Sec. 15, T. 15S, R. 9E,  
Carbon County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the enclosed Conditions of Approval, approval to drill the referenced well is granted.

This approval will expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-007-30666.

Sincerely,



John R. Baza  
Associate Director

er

Enclosures

cc: Carbon County Assessor  
SITLA

**Operator:** Marathon Oil Company

**Well Name & Number:** SITLA 34-15

**API Number:** 43-007-30666

**Lease:** ML-47978-OBA

**Location:** SW SE , **Sec.** 15 **T.** 15S **R.** 9E

### **Conditions of Approval**

**1. General**

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

**2. Notification Requirements**

Notify the Division of the following actions during drilling of this well:

- . 24 hours prior to cementing or testing casing
- . 24 hours prior to testing blowout prevention equipment
- . 24 hours prior to spudding the well
- . within 24 hours of any emergency changes made to the approved drilling program
- . prior to commencing operations to plug and abandon the well

Division contacts (please leave a voice mail message if the person is not available to take the call):

- . Dan Jarvis at (801)538-5338
- . Robert Krueger at (801)538-5274 (plugging)
- . Carol Daniels at (801)538-5284 (spud)

**3. Reporting Requirements**

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

**4. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.**

**5. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)**

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MARATHON OIL COMPANY

Well Name: SITLA 34-15

Api No. 43-007-30666 LEASE TYPE: STATE

Section 15 Township 15S Range 09E County CARBON

Drilling Contractor ELLENBURG DRILLING RIG # 15

SPUDDED:

Date 07/22/2000

Time 9:15 AM

How DRY

Drilling will commence \_\_\_\_\_

Reported by \_\_\_\_\_

Telephone # \_\_\_\_\_

Date 07/25/2000 Signed: CHD

**STATE OF UTAH**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF OIL, GAS AND MINING**

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> <small>Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.          Use APPLICATION FOR PERMIT - for such proposals</small>		6. Lease Designation and Serial Number ML-47978-OBA
		7. Indian Allottee or Tribe Name NA
		8. Unit or Communitization Agreement NA
		9. Well Name and Number SITLA # 34-15
1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other (specify) <u>  ?  </u>		10. API Well Number 43-007-30666
2. Name of Operator <b>Marathon Oil Company</b>		11. Field and Pool, or Wildcat DRUNKARD'S WASH
3. Address of Operator <b>1501 Stampede Ave., Cody, Wyoming 82414</b>	4. Telephone Number 307-527-2211	
5. Location of Well Footage : 1162' FSL, 1337' FEL      County : CARBON QQ, Sec. T., R., M : SWSE 15-15S-9E      State : UTAH		
12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		

**NOTICE OF INTENT**  
(Submit in Duplicate)

<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing
<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Shoot or Acidize
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare
<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Other _____	

Approximate Date Work Will Start \_\_\_\_\_

**SUBSEQUENT REPORT**  
(Submit Original Form Only)

<input type="checkbox"/> Abandonment *	<input type="checkbox"/> New Construction
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing
<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Shoot or Acidize
<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Other _____	SPUD

Date of Work Completion 07/25/2000

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

13. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

THE ABOVE NAMED WELL WAS SPUDDED ON 7/25/00 WITH ELENBURG RIG #15.  
 SURFACE CASING WAS PRE-SET TO 331'.

GL: 6022'

KB: 6034'

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 JUL 26 2000  
 DIVISION OF  
 OIL, GAS AND MINING

CC: WRF,RPM,DRILLING,DTJ,T&C(HOU),MEW

14. I hereby certify that the foregoing is true and correct.

Name & Signature <u>R.P. Meabon</u>	Title _____	Reg. Coord. _____	Date <u>07/26/00</u>
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(State Use Only)

Marathon Oil Company  
Rocky Mountain Region  
1501 Stampede Ave.  
Cody, WY 82414

August 15, 2000

State of Utah  
Department of Natural Resources  
Division of Oil, Gas, and Mining  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, UT 84114-5801

*Type of Logs Rec'd.  
Spectral Litho Density  
+ Compensated Neutron  
Gamma Ray Log  
Filed in Log File*

*API # 43-007-30666*

Enclosed are logs from SITLA #34-15 (SE 15 15S 9E) drilled 7-27-2000, and  
SITLA #22-15 (NW 15 15S 9E) drilled 8-1-2000.

*To be filed  
Utah DNR.*

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

**ENTITY ACTION FORM**

Operator: Marathon Oil Company  
Address: Attn: Michael L. Meyer  
539 South Main St.  
Findlay, OH 45840

Operator Account Number: N 3490

Phone Number: (419) 421-3217

Well 1

API Number	Well Number		QQ	Sec	Twp	Rng	County
43-007-30668	Sitla 41-16		NE NE	16	15S	9E	Carbon
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
A	99999	12877	7-28-00			9-13-00	
Comments: 9-13-00							

Well 2

API Number	Well Number		QQ	Sec	Twp	Rng	County
43-007-30664	Sitla 22-15		SE NW	15	15S	9E	Carbon
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
A	99999	12878	7-30-00			9-13-00	
Comments: 9-13-00							

Well 3

API Number	Well Number		QQ	Sec	Twp	Rng	County
43-007-30666	Sitla 34-15		SW SE	15	15S	9E	Carbon
Action Code	Current Entity Number	New Entity Number	Spud Date			Entity Assignment Effective Date	
A	99999	12879	7-25-00			9-13-00	
Comments: 9-13-00							

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Michael L. Meyer  
Name (Please Print) Michael L. Meyer /kas  
Signature  
Supervisor (RMS) 9-8-00  
Title Date

(6/2000)

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**SEP 11 2000**

**DIVISION OF  
OIL, GAS AND MINING**

**STATE OF UTAH**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF OIL, GAS AND MINING**

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> <small>Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.          Use APPLICATION FOR PERMIT -- for such proposals</small>		6. Lease Designation and Serial Number ML-47978-OBA
		7. Indian Allottee or Tribe Name NA
		8. Unit or Communitization Agreement NA
		9. Well Name and Number SITLA # 34-15
1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other (specify) <u>2</u>		10. API Well Number 43-007-30666
2. Name of Operator <b>Marathon Oil Company</b>		11. Field and Pool, or Wildcat DRUNKARD'S WASH
3. Address of Operator <b>1501 Stampede Ave., Cody, Wyoming 82414</b>	4. Telephone Number 307-527-2211	
5. Location of Well Footage : 1337' FEL, 1162' FSL                      County : CARBON QQ, Sec, T., R., M : SWSE 15-15S-9E                      State : UTAH		
12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		

**NOTICE OF INTENT**  
 (Submit in Duplicate)

<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing
<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Shoot or Acidize
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare
<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Other _____	

Approximate Date Work Will Start \_\_\_\_\_

**SUBSEQUENT REPORT**  
 (Submit Original Form Only)

<input type="checkbox"/> Abandonment *	<input type="checkbox"/> New Construction
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing
<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Shoot or Acidize
<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Other _____	First Production _____

Date of Work Completion Sept. 27, 2000

Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form.

\* Must be accompanied by a cement verification report.

13. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

This well first produced as an Active Single (S1) Ferron gas producer on Sept. 27, 2000.

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OCT 11 2000

DIVISION OF  
OIL, GAS AND MINING

CC: WRF,RPM,DTJ,T&C(HOU),MEW

14. I hereby certify that the foregoing is true and correct.

Name & Signature R.P. Meabon  Title Reg. Coord. Date 10/10/00

(State Use Only)

**STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING**

**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

<b>1a. TYPE OF WELL:</b> OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> DRY <input type="checkbox"/> Other _____ <b>b. TYPE OF COMPLETION:</b> NEW WELL <input checked="" type="checkbox"/> WORK OVER <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> Other _____										5. LEASE DESIGNATION AND SERIAL NO. <b>ML-47978-OBA</b>	
										6. IF INDIAN, ALLOTTEE OR TRIBE NAME <b>NA</b>	
2. NAME OF OPERATOR <b>MARATHON OIL COMPANY</b>										7. UNIT AGREEMENT NAME <b>NA</b>	
3. ADDRESS OF OPERATOR <b>1501 STAMPEDE AVENUE, CODY, WYOMING 82414</b>										8. FARM OR LEASE NAME <b>SITLA</b>	
4. LOCATION OF WELL (Report locations clearly and in accordance with any State requirements.)* At surface <b>1162' FSL, 1337' FEL SWSE</b>  At top prod. interval reported below  At total depth <b>SAME</b>										9. WELL NO. <b>34-15</b>	
14. API NO. <b>43-007-30666</b>										DATE ISSUED <b>3/23/2000</b>	
15. DATE SPUDDED <b>7/22/2000</b>										12. COUNTY <b>CARBON</b>	
16. DATE T.D. REACHED <b>7/27/2000</b>										13. STATE <b>UTAH</b>	
17. DATE COMPL. (Ready to prod.) or (Plug & Abd.) <b>9/28/2000</b>										18. ELEVATIONS (DF, RKB, RT, GR, ETC.) <b>6022' GR, 6034' RKB</b>	
19. ELEV. CASINGHEAD <b>NA</b>											
20. TOTAL DEPTH, MD & TVD <b>2762 MD 2762 TVD</b>										21. PLUG BACK T.D., MD & TVD <b>2718 MD 2718 TVD</b>	
22. IF MULTIPLE COMPL., HOW MANY* <b>-----&gt;</b>										23. INTERVALS <b>0 - 2762'</b>	
24. PRODUCING INTERVAL(S), OF THIS COMPLETION---TOP, BOTTOM, NAME (MD AND TVD) <b>2400' - 2497' gross - Ferron Coal</b>										25. WAS DIRECTIONAL SURVEY MADE <b>NA</b>	
26. TYPE ELECTRIC AND OTHER LOGS RUN <b>8-21-00 STI/SLD/CNT/GR/CBL/CCL/GR - 10-3-00</b>										27. WAS WELL CORED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> DRILL STEM TEST? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> (Submit analysis) (See reverse side)	
23. CASING RECORD (Report all strings set in well)											
CASING SIZE		WEIGHT, LB./FT.		DEPTH SET (MD)		HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED	
8-5/8"		24#		343' KB		11"		140 sxs Prem G		0	
5-1/2"		17#		2760' KB		7-7/8"		Lead- 125 sxs 50/50 POZ +		0	
								Tail - 195 sxs Thixotropic			
29. LINER RECORD											
SIZE		TOP (MD)		BOTTOM (MD)		SACKS CEMENT		SCREEN (MD)		30. TUBING RECORD	
none										SIZE 2-7/8"	
										DEPTH SET (MD) 2607' KB	
										PACKER SET (MD) none	
31. PERFORATION RECORD (Interval, size and number)											
INTERVAL		SIZE		NUMBER		32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.					
2400' - 2410'		22.7 gm		41		DEPTH INTERVAL (MD)		AMOUNT AND KIND OF MATERIAL USED			
2453-59', 2463'-65', 2472'-76', 2493'-97'		22.7 gm		68		2400' - 2410'		112,990# 16-30 sd in 40,276 gals 20# gel			
						2453' - 2497'		39,700# 16-30 sd in 21,598 gals 20# gel			
33.* PRODUCTION											
DATE FIRST PRODUCTION <b>9/28/00</b>		PRODUCTION METHOD (Flowing, gas lift, pumping-size and type of pump) <b>Pumping - 175/4100 Progressive cavity pump</b>						WELL STATUS (Producing or shut-in) <b>Producing</b>			
DATE OF TEST <b>10/10/2000</b>		HOURS TESTED <b>24</b>		CHOKE SIZE <b>na</b>		PROD'N. FOR TEST PERIOD <b>-----&gt;</b>		OIL-BBLS. <b>0</b>		GAS-MCF. <b>300</b>	
								WATER-BBL. <b>136</b>		GAS-OIL RATIO <b>na</b>	
FLOW. TUBING PRESS. <b>50</b>		CASING PRESSURE <b>50</b>		CALCULATED 24-HOUR RATE <b>-----&gt;</b>		OIL-BBL. <b>0</b>		GAS-MCF. <b>300</b>		WATER-BBL. <b>136</b>	
										OIL GRAVITY-API (CORR.) <b>na</b>	
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) <b>Sold</b>										TEST WITNESSED BY <b>Field Supervisor</b>	
35. LIST OF ATTACHMENTS											
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records.											
SIGNED <b>[Signature]</b>				TITLE <b>REGULATORY COORDINATOR</b>				DATE <b>10/16/00</b>			

See Spaces for Additional Data on Reverse Side

# INSTRUCTIONS

This form should be completed in compliance with the Utah Oil and Gas Conservation General Rules. If not filed prior to this time, all logs, tests, and directional surveys as required by Utah Rules should be attached and submitted with this report.

ITEM 18: Indicate which elevation is used as reference for depth measurements given in other spaces on this form and on any attachments.

ITEMS: 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

ITEM 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

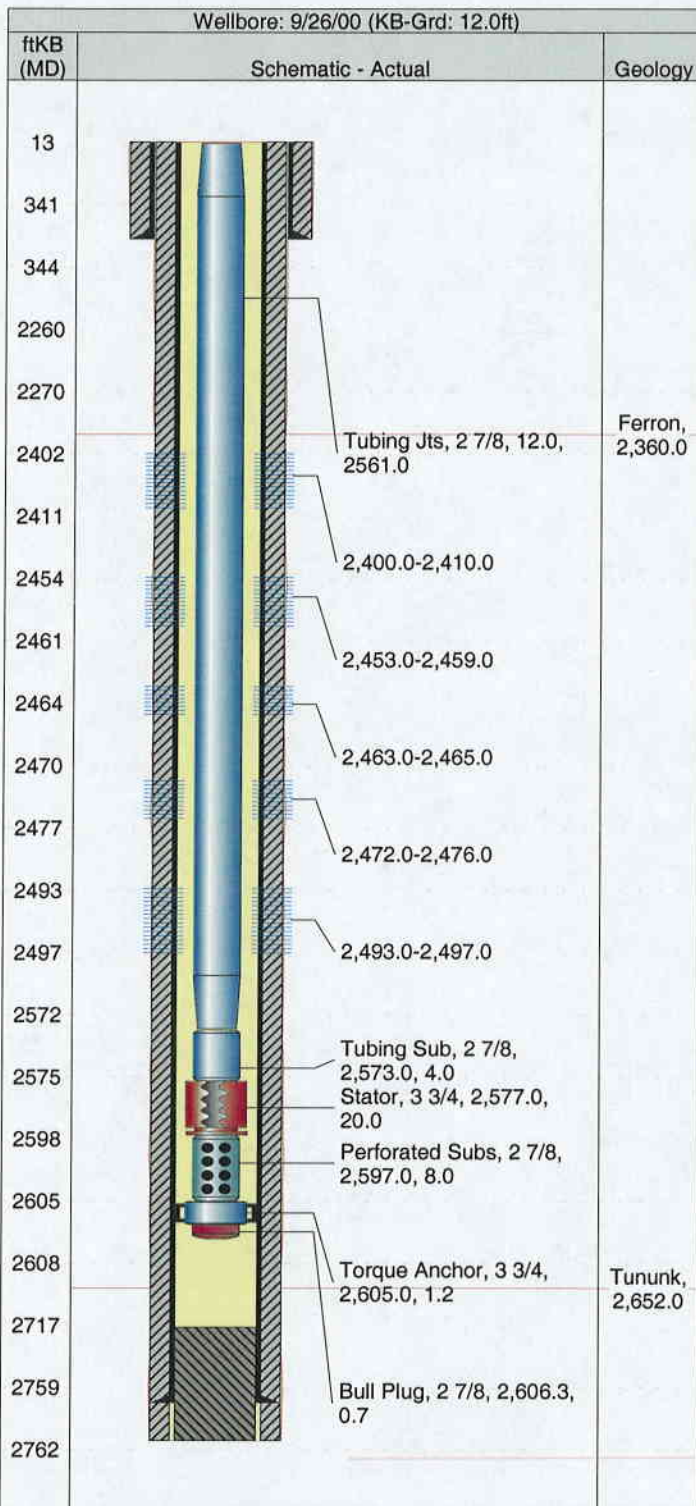
ITEM 33: Submit a separate completion report on this form for each interval to be separately produced (see instruction for items 22 and 24 above).

37. SUMMARY OF POROUS ZONES:			38. GEOLOGIC MARKERS			
Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.						
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAS. DEPTH	TRUE VERT. DEPTH
				Ferron	2360	2360
				Tununk	2652	2652

**Sitla 34-15**
**Location**

East-West Distance (ft)	From E or W Line	NS Dist. (ft)	From N or S Line
1337.0	E	1162.0	S
Latitude (DMS)		Longitude (DMS)	
Legal Survey Type		Surface Legal Location	
Congressional		SW/SE Sec. 15, T15S, R9E	

API	Field Name	Area	Operator	County	State/Province
43-007-30666	Drunkards Wash	Price, UT	Marathon Oil Company	Carbon	Utah
KB Elev (ft)	Ground Elev (ft)	Casing Flange Elev (ft)	KB-Ground (ft)	KB-Casing Flange (ft)	Spud Date
6034.00	6022.00	6022.00	12.00	12.00	7/22/00



Group List - Actual							
Wellbore							
Date	Des	OD	Int (MD)				
7/22/00	Wellbore	11	12.0-343.0				
7/25/00	Wellbore	7 7/8	343.0-2,762.0				
Surface Casing							
Date	Des	OD	ID	Top (MD)	Len	Btm (MD)	
7/22/00	Casing Jts	8 5/8	8.097	12.0	330.0	342.0	
7/22/00	Guide Shoe	8 5/8	8.097	342.0	1.0	343.0	
Production Casing							
Date	Des	OD	ID	Top (MD)	Len	Btm (MD)	
7/27/00	Casing Jts	5 1/2	4.892	12.0	2247.3	2,259.3	
7/27/00	Marker Jt.	5 1/2	4.892	2,259.3	12.1	2,271.4	
7/27/00	Casing Jts	5 1/2	4.892	2,271.4	487.6	2,759.0	
7/27/00	Guide Shoe	5 1/2	4.892	2,759.0	1.0	2,760.0	
Tubing String							
Date	Des	OD	ID	Len	Top (MD)	Btm (MD)	
9/25/00	Tubing Jts	2 7/8	2.441	2561.0	12.0	2,573.0	
9/25/00	Tubing Sub	2 7/8	2.441	4.0	2,573.0	2,577.0	
9/25/00	Stator	3 3/4	2.411	20.0	2,577.0	2,597.0	
9/25/00	Perforated Subs	2 7/8	2.411	8.0	2,597.0	2,605.0	
9/25/00	Torque Anchor	3 3/4		1.2	2,605.0	2,606.3	
9/25/00	Bull Plug	2 7/8	2.411	0.7	2,606.3	2,607.0	
Rod String							
Date	Des	OD	Top (MD)		Len	Btm (MD)	
9/26/00	Polished Rod	1 1/4	17.0		22.0	39.0	
9/26/00	Pony Rod	7/8	39.0		4.0	43.0	
9/26/00	Pony Rod	7/8	43.0		8.0	51.0	
9/26/00	Rod Jts	7/8	51.0		2525.0	2,576.0	
9/26/00	Pony Rod	7/8	2,576.0		6.0	2,582.0	
9/26/00	PC Rotor	7/8	2,582.0		15.0	2,597.0	
Cement							
Date	Des	Int (MD)				Com	
7/22/00	Surface Casing	12.0-343.0					
7/27/00	Production Casing	12.0-2,762.0					
9/23/00	PBTD	2,718.0-2,762.0					
Perforations							
Date	Int (MD)		Com				
8/30/00	2,400.0-2,410.0						
8/28/00	2,453.0-2,459.0						
8/28/00	2,463.0-2,465.0						
8/28/00	2,472.0-2,476.0						
8/28/00	2,493.0-2,497.0						
Formations							
Des	Top (MD)						
Ferron	2,360.0						
Tununk	2,652.0						

RECEIVED

OCT 23 2000

DIVISION OF  
OIL, GAS AND MINING